THE RAILWAY GAZETTE
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CONTENTS

	PAGE
Editorials	121
Letters to the Editor	124
The Scrap Heap	125
Overseas Railway Affairs	126
Operating Characteristics of Steam and Diesel-Electric Locomotives	128
A New Development in Crane Locomotive Design	131
New L.M.S.R. Control Office	132
Railway News Section	133
Personal	133
Transport Services and the War	137
Stock Market and Table	144

DIESEL RAILWAY TRACTION SUPPLEMENT

The August issue of THE RAILWAY GAZETTE *Supplement, illustrating and describing developments in Diesel Railway Traction, is now ready, price* 1s.

NOTICE TO SUBSCRIBERS

Consequent on further paper rationing, new subscribers cannot be accepted until further notice. Any applications will be put on a waiting list which will be dealt with in rotation in replacement of subscribers who do not renew their subscriptions

POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE *possesses the necessary permit and facilities for such dispatch.*

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

REDUCTION IN SIZE OF PAGE

To economise in paper our readers will observe a slight reduction in the size of THE RAILWAY GAZETTE *in that the size of the page has been reduced from* 9 *in.* × 12 *in. to* 8½ *in.* × 11½ *in. The type area of the page remains the same, namely,* 7 *in.* × 10 *in., but the surrounding margins have been reduced. This of course detracts from the appearance of the paper, but is one of the exigencies of the war*

TO CALLERS AND TELEPHONERS

Until further notice our office hours are:
Mondays to Fridays 9.30 *a.m. till* 5.30 *p.m.*
The office is closed on Saturdays

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

The Home Railway Half-Year

THE announcement by the directors of the London Midland & Scottish Railway Company of their interim dividend decisions brings to a close the home railway financial declarations for the first half of the current year. The statements of the other major controlled undertakings were given in our last week's issue, and it will be recalled that in general the policy was to make more nearly proportionate interim payments as compared with the year's totals, the latter of which are stabilised to within a little because the revenues cannot vary greatly under the rental agreement with the Government. In some quarters it had been hoped that the L.M.S.R. board would adopt a similar policy, and that the ordinary stock which received nothing a year ago, but was paid 2 per cent. after the close of the 1941 financial year, would get some return for the past half-year. The directors, however, have decided once more to await the full year's accounts before dealing with the dividend on the ordinary stock. They point out that a considerable portion of the income available for the company's ordinary dividend is derived from items outside the annual sum received under the Government agreement, and they add that the income from these items has been maintained. Below we show the interim distribution for the controlled undertakings for the first half of this year, compared with those for the similar period for 1941, and also the total payments for the year.

	Interim 1942 Per cent.	Interim 1941 Per cent.	Total 1941 Per cent.
G.W.R. Ordinary	2	1½	4
L.M.S.R. Ordinary	Nil	Nil	2
L.N.E.R. 2nd Preference	1	Nil	2½
Southern Deferred	Nil	Nil	1½
London Transport "C"	1½	¾	2¼

For the whole of last year the non-guaranteed income, excluding revenue from joint lines, which was unchanged, amounted to £775,800, and provided more than ¾ per cent. of the 2 per cent. that was paid on the junior stock.

Mr. Vincent Dean

Mr. Vincent L. Dean, V.D., whose death we recorded last week, and a biography of whom appears on another page in this issue, received his training with the former London & North Western Railway, but in 1914 he was appointed an Assistant Traffic Superintendent of the Indian State Railways and was posted to the North Western system, and later became Divisional Superintendent at Ferozepur. At the time of his death, Mr. Dean was General Secretary to the Indian Railway Conference Association, which post included the duties of Director of the Indian Railways Broad-Gauge Wagon Pool (covering 45,000 route-miles and the inter-railways distribution arrangements for 125,000 wagons). Out of loyalty to India, where he felt that his services would be needed, he had declined the appointment of General Manager of the Ceylon Government Railway, which he had been offered by that Government in preference to four candidates selected by the Crown Agents, and in spite of the fact that some seventy applications for the position had been received. Mr. Dean will be remembered also as Principal of the Walton Training School of the North Western Railway for some four years, and in connection with his management of the Indian Railways Publicity Bureau in New York for a brief period, which terminated with the closing of that office in 1938. His death, at the early age of 51, deprives the Indian railways in general, and the North Western Railway in particular, of one whose services they can ill afford to lose, especially at the present time.

First and Third Class Travel

To the many voices which have been raised on the subject of first and third class railway travel has been added that of Mr. J. B. Priestley. Some extracts from an article he has contributed on this subject to *The New Statesman & Nation* appear on page 125, and it seems possible that he has found, at least in part, a reason for what is becoming almost a class struggle on the railways. It is strange, indeed, that the bitterness which the differentiation between first and third class on the railways seems to engender is not found, in other spheres of commercial life, where it is accepted that for varying kinds, qualities, or positions of goods or services, differing prices should be charged. Mr. Priestley's suggestion, therefore, that objection arises from the use of the word "class," and might be overcome by the railways offering big or little seats, or wide or narrow seats, at varying prices, may have some psychological justification. He makes a good point in drawing attention to the fact that contemporary industries, such as the cinema, in which wide variations are charged for differing kinds of seats, avoid arranging them in classes, and that in general concerns that cater most successfully

for the people are careful to avoid any suggestion of class differences. It seems indeed that in this matter of first and third class there is far more in a name than the national bard would have us believe. On the railways of the United States there is only one class of carriage—the "coach"—but the extra comfort of a parlour car may be obtained on payment of a supplement. We have never heard of coach passengers storming a parlour car, without paying an extra fare, because the coaches happened to be full.

Overseas Railway Traffics

With the exception of the Buenos Ayres & Pacific and the Entre Rios, which record decreases of 50,000 pesos and 73,400 pesos respectively, the British-owned railways in Argentina have secured increases in the third and fourth weeks of the current financial year. In that period the gains in pesos have been 515,250 on the Central Argentine, 247,000 on the Buenos Ayres Great Southern, 81,000 on the Buenos Ayres Western, and 24,000 on the Argentine North Eastern. A year ago in the two corresponding weeks the increases in pesos were 572,500 on the Central Argentine, 465,000 on the Buenos Ayres & Pacific, 255,000 on the Buenos Ayres Western 124,800 on the Entre Rios, 116,000 on the Buenos Ayres Great, Southern, and 67,600 on the Argentine North Eastern. United of Havana traffics for the first four weeks of the current financial year amount to £130,979, an improvement of £58,994.

	No. of week	Weekly traffics	Inc. or decrease	Aggregate traffic	Inc. or decrease
Buenos Ayres & Pacific*	4th	1,355	— 15	5,182	— 265
Buenos Ayres Great Southern*	4th	2,138	— 107	7,405	— 40
Buenos Ayres Western*	4th	830	— 78	2,837	— 55
Central Argentine* ...	4th	2,141	+ 389	7,110	+ 492
		£	£	£	£
Canadian Pacific ...	3rd	1,000,400	+ 114,400	27,140,000	+ 4,645,600

* Traffic returns in thousands of pesos.

Aggregate gross earnings of the Canadian Pacific Railway for the first six months of 1942 were £24,206,600, an increase of £4,238,600, and the aggregate net earnings of £4,389,600 showed an improvement of £405,600 over those for the first six months of 1941.

Bombay, Baroda & Central India Railway

The passing on June 11 of the Bombay, Baroda & Central India Railway Act, 1942, is a necessary preliminary to the winding-up of the company, which ceased to function as an operating body after December 31 last. Being incorporated by a Special Act of Parliament, the company could not wind itself up, nor could it be wound up under the Companies Act like a joint-stock undertaking. In other recent cases of purchase by the Government of India of company-worked railways, such as the Assam-Bengal, the Bengal-Dooars, the Bengal & North Western, and the Rohilkund & Kumaon, the undertakings concerned were limited companies, and the remaining large railways still managed by companies, namely, the Bengal-Nagpur, the Madras & Southern Mahratta, and the South Indian, are in a similar category. The Bombay, Baroda & Central India was incorporated in 1855, as a 5 per cent. guaranteed line, subject to a determination of its contract at the option of the Government, which was exercised in 1905. The purchase price was £11,685,580 11s. 3d., equal to £154 15s. 5d. per cent. of old consolidated stock. This was paid as to £9,685,580 11s. 3d. in 3 per cent. India stock, taken at 96 per cent., and £2,000,000 in new 3 per cent. guaranteed capital stock, giving holders for each £100 of old consolidated stock £133 12s. 6d. in India stock taken at 96 per cent., and £26 9s. 6d. in the new capital stock. New contracts for working the railway were made between the company and the Secretary of State, and, now that he has exercised his option under those contracts, he has taken over the working of the railway as from the beginning of 1942.

Brake Standardisation in Denmark

Progress continues to be made with the equipment of the rolling stock of the Danish State Railways with the German Kunze-Knorr brake, according to press reports emanating from enemy sources. The stock of goods wagons, part of which was formerly fitted only with handbrakes, was taken in hand not long after the German occupation of Denmark, and its equipment with compressed-air brakes is expected to be completed within the next few months. A beginning has also been made with the conversion of the vacuum-brake passenger stock, and this work is expected to be finished within four years. The first group of converted locomotives, passenger carriages, and goods wagons is being placed in service on the railways in the islands of Zeeland and Falster, which are on the route from Germany to Sweden *via* the Gedser-Warnemünde ferry. Further converted stock will be used in the island of Funen, and the mainland of Jutland will be left until last. Electric rolling stock is not affected, as it has always been equipped with compressed-air brakes. Although the conversion has been undertaken by the Danish State Railways, the scheme is being carried out with the active support and assistance of the German authorities. This standardisation is naturally of some importance to Germany's scheme for a New Order in Europe, as it would facilitate the interchange of Danish rolling stock with that of the Reichsbahn, and of other railways in German-occupied territories.

Right and Left Hand Running in Spain

Of the 12,800 km. (7,954 miles) of railway in Spain, 1,800 km. (1,118 miles) are double track. On about one half of this mileage right-hand running is in operation and on the remainder left-hand working in the rule. The two systems have been in use together for over 40 years; the old M.Z.A. Company originally adopted right-hand working and the Norte Company the opposite arrangement. Since the formation of the national railway system it has been agreed that a uniform method is to be adopted and the matter is being studied, according to an article in our contemporary *Ferrocarriles y Tranvias* by Señor Francisco Baron, Assistant Manager of the National Administration, with a view to arriving at the easiest and most economic solution of the problem. There are some who consider that if the two systems have been in use for so many years there is no reason why the practice should not continue, but the contemplated doubling of single lines makes it desirable to institute a standard arrangement. Whichever method is adopted, considerable expense will be incurred, as wholesale alterations to crossover roads, signals, and station layouts will be necessary, and the process of changing over will need very careful planning.

The August Holiday Traffic

THE Ministry of War Transport's appeals to the public, by press advertisements and through the B.B.C., to refrain from travelling by train during the August Bank Holiday period were less successful than was the case last Easter and Christmas. It has been stated that rationing of travel would involve a costly organisation and cannot be faced. But as we have previously contended, a simple means is at hand by utilising one of the spare pages of coupons in the Food Ration Books. That, however, is by the way.

Last Saturday the greatest crushes and overcrowding occurred at Paddington. But the numbers travelling from Euston, Kings Cross, Liverpool Street, Waterloo, and Victoria are reported as being less than on a normal Saturday preceding the August Bank Holiday; many trains were not fully loaded. Under present conditions and owing to the areas prohibited to holiday makers it is not surprising that those members of the civilian public not sufficiently patriotic to heed the Ministry's appeals to spend their holidays at home would flock westwards rather than to the north, the north-east, the east or the south.

Writing unofficially, but with some knowledge of railway operation and acquaintance with those responsible for its direction extending over a period of forty years, we venture to suggest that had the British railway companies been left to manage their own business, as is the case with the railways in the U.S.A., instead of being dictated to by those without railway experience, such an obvious happening as this desire to travel westward would have been foreseen.

No company is allowed to exceed the maximum number of duplicate trains run on any Saturday last summer. But if only sufficient freedom of action had been given to apportion the duplicate trains where they were likely to be most needed without exceeding the total number run by all companies in previous years, we think the four main-line companies would have co-operated to that end.

One word regarding the vexed question of travel rationing. The Great Western was the pioneer in seat reservation on long-distance trains on payment of a shilling booking fee. This facility, so useful in pre-gauging the loading of passenger trains, was ordered to be withdrawn by all companies on the outbreak of war. In view of what has since transpired, the question arises, was this a mistake? If reintroduced, with a wartime proviso that rail tickets could be issued only to those holding seat tickets, it might prove a workable alternative to travel rationing.

Success of War Operation of U.S.A. Railways without Government Control

IT is not without reason that our American contemporary, the *Railway Age*, describes its issue of May 23 as the "most important ever published in its life of eighty-six years." Described as a "Freight Progress in War" number, it reviews the astonishing response that has been made by the railways of the United States to the tremendous transportation demands arising from America's aid to the Allied Nations, her own defence preparations, and, finally, her active participation in the war. From time to time, in editorials and in our Overseas columns, we have drawn attention to these United States developments, in both the passenger and the freight realm, but the magnitude of the freight achievement is worthy of a more detailed examination. Apart from the vast expansion of internal freight movement, entailing the transport of raw materials to the manufacturing centres, of finished war stores to the coast, often over great distances, and the supply of large military establishments all over the country, the almost complete extinction of coastwise shipping, due to Axis submarine activity, has thrown on to the railways a great volume of diverted traffic such as they were never called upon to carry in the 1914-1919 war. For example, as recently as April, 1941, the railways were moving about 350 tank cars of petroleum every week from the oilfields in the Mississippi valley and neighbouring regions to the east coast; in the week ended May 2, 1942, 19,926 cars were handled, or the equivalent of over 640,000 barrels. Government officials concerned with petroleum supply claimed that the railways could never do it, and wild schemes were envisaged for oil pipelines half-way across the continent, to meet the situation; but the railways have done it, and are equally prepared even if the demand should rise to 800,000 barrels daily. Such traffic is concentrated on certain specific routes, so that the oil may be moved in complete trainloads. Similarly the coal hitherto shipped in vast quantities from east coast ports, from the coalfields of Virginia, West Virginia, Pennsylvania, and other adjacent States, has to a large extent now to find all-rail routes; fruit and other perishable traffics from the southern states, previously assembled by road transport and transported by water, have been turned over to the railways both to collect and to move.

The yearly movement of wheat in the United States always represents one of the most intense and concentrated freight operations of the year, requiring specialised and nation-wide preparation. Not only was the 1941 crop of 899 million bushels exceptionally heavy, but the matter was complicated by the fact that country and terminal grain elevators, and farm storage in the south-west, were filled with a record carry-over from the previous year's production, which had been stored by the American Government. This made necessary in 1941 an unprecedented movement of the old grain to other storage points, in order to make room for the new crop, and the matter was complicated by the fact that for certain reasons transport of the former could not begin until a bare month before harvesting of the 1941 crop was under way. Yet the railways met the emergency without any breakdown in their organisation. Again, due to the interruption of supplies from other parts of the world, there has been a record growth in the production of soya beans in the United States; the 1941 crop of 106,712,000 bushels was 200 per cent. in excess of the average over the ten years up to 1939, and created complicated transport problems in Iowa, Illinois, Indiana, and Ohio. This year, as early as May 1, the movement of iron ore from the Minnesota and Michigan mines to the iron and steel working centres was 24 per cent. up on the corresponding figure for 1941, and it is expected that the 1942 total of 80,116,300 tons will be increased at least to 90,000,000 tons in 1942; the limiting factor here again is not the capacity of the railways, but the shortage of ore-boats on the Great Lakes and the limited accommodation available at the works for stocking the ore. Thus, in whatever direction the present freight situation in the United States be examined, the facts show that the railways until now have been fully able to cope with every demand that has been made on them, and in some instances with little or no preliminary warning, as, for example, after the Japanese attack on Pearl Harbour.

These achievements are of considerable importance in their bearing on the claim now being made by certain radio commentators, economic "experts," and other loudly vocal and ill-informed critics in the United States, that the time has come to put the many independent railways of the United States under a single unified direction. One writer in particular has asserted that when this step was actually taken in the last war, under Government operation railway efficiency was raised to an "all time high." What are the facts? In 1918, the first year of Government direction of American railways in the last war, the total freight traffic increased over that of 1917 by a mere 3 per cent., whereas operating expenses increased by 40 per cent., and freight and passenger rates went up by an aggregate of about $1,000 million. In the present war, freight traffic increased in 1941 over that of 1940 by 27 per cent., but expenses have advanced only by 18½ per cent., and the increases in freight and passenger rates authorised to cover the heavy additions made to payrolls by reason of Governmental pressure, as well as to both Federal and State taxation, have amounted to only $275 million. But it is when the details are closely examined that the more startling figures of the comparison are revealed. Comparing the first two months of 1942 with the corresponding period in 1918, we find that the net ton-miles of freight handled by American railways have grown from 56,973 to 90,763 millions, or by 59·3 per cent.; yet the work has been done by 38·6 per cent. fewer locomotives—21,885 against 35,630, which have covered an average of 95½ miles daily as compared with 61½ miles. Freight cars in use have diminished in number from 2,363,861 to 1,971,617, yet such is their present intensive use that with loading stationary at an average of 28·9 tons per car in 1918 and 29·0 tons in 1941, the average weight of freight hauled per train has gone up from 596 to 918, and the average mileage of each car per day, including all standing time, from 20·0 to 41·5 miles. Combining these increases, we find that the average ton-mileage of each locomotive has increased by no less than 159 per cent., and of each car by 91 per cent. Not only so, but under Government operation in 1918 there were 700,000 more railway employees than in 1941, though they were paid 38 per cent. less a head in the former year; in 1918 the gross railway earnings were $466 million less than in 1941, and $323 less was being paid in taxation in 1918 than in 1941. No more impressive figures than these could be cited to vindicate the success and efficiency of individual American railway operation in the present war.

To set out in detail all the factors which have contributed to the revolutionary improvement in freight handling in the United States would, of course, be impossible within the limits of this brief commentary, but a few may be indicated. One is the great increase in the power of locomotive units, seen especially in the widespread introduction of articulated steam locomotives, of which 120 were built in 1941 alone, and also of diesel-electric freight units of 5,400 and 6,000 b.h.p., which also are coming rapidly into use. With such power as this, trains of 100 bogie freight cars are common, and on the lines chiefly occupied in the conveyance of coal and minerals, trains with a gross weight of from 7,000 to 10,000 tons and more are becoming the rule rather than the exception. New freight cars are being turned out in thousands to meet urgent present needs. Fast freight traffic has benefited from all the improvements to track and signalling carried out primarily in the interests of the streamline passenger trains, and the "hotshot" freights, as they are called, are now being operated at maximum speeds up to 60 and 70 m.p.h., with point-to-point bookings up to 50 m.p.h., average speeds over long distances, including all stops, of 40 m.p.h. and upwards, and loads of 4,000 tons and over. Automatic signalling is now in operation on 97,489 route miles of line, and the use of centralised traffic control has been greatly extended; in addition, by the re-spacing and lengthening of passing loops on single lines, and the putting in of switches capable of being run through at considerably higher speeds than previously, the speed of freight operation over certain routes has been increased out of all knowledge. Extensive additions have been made to marshalling yards in all directions, and their work has been expedited by the introduction of large numbers of diesel-electric shunters, of 600 to 1,000 b.h.p., the latest of which can be used, singly or in pairs, with multiple-unit operation, for main-line work between yards. All these changes, in their turn, with systematic improvements in maintenance methods, have permitted both locomotives and freight cars to be put to much more intensive use than previously. As to the freight car users, 351 vigilance committees have recently been set up by shippers themselves, in conjunction with 13 regional advisory boards which have functioned smoothly for the past 18 years, in order to supervise freight car handling in 464 cities, and already they have been responsible in bringing about substantial reductions in car detention by the users; the general aim is that no car shall be detained by any user for longer than 48 hours. In these and many other ways American railways are meeting the unprecedented demands of today with equally unprecedented determination and skill, and it is clear that those who contend that they could have achieved more under Government control plainly have not familiarised themselves with the facts of history.

Still further expansion, of course, has yet to be faced, and, whereas the American railways can reasonably claim to have adapted themselves with complete success to the traffic expansion that has taken place until now, continued success must to some extent hinge upon the ability of the locomotive and freight-car builders to complete the rolling stock orders now on their books.

The War Production Board has authorised the allocation of sufficient materials to build 1,226 locomotives in 1942, and if these are forthcoming, the risk of a locomotive shortage, which at one time was even greater than that of a freight-car shortage, will be averted. As to freight cars, the Association of American Railroads calculated in the middle of 1941 that it would require the delivery of 120,000 new cars between October 1, 1941, and October 1, 1942, and 150,000 in the year following, but there have been many subsequent happenings to invalidate this forecast, particularly the diversion of oil and coal from water to rail transport, and the diversion of traffic from road to rail by reason of rubber shortage, calling for still more wagons rather than less. On the other hand, the War Production Board reduced the 1941-1942 freight car estimate of 120,000 cars to 80,000, so accentuating the probable shortage. Actually, with the astonishing increase that has been secured in the efficiency of American freight car utilisation, no serious car shortage is apprehended in 1942; the crucial year is likely to be 1943. Nevertheless, what has been achieved to date is the best guarantee, given reasonable freedom from governmental interference, of the competence of the United States railways to tackle the maximum demand that the war may throw on them; and in the ultimate victory of the Allied Nations it is certain that they will have played no small part.

The Steam Locomotive Again Challenged

THE diesel-electric locomotive, whatever its merits or demerits in comparison with the steam reciprocating locomotive may amount to, lacks nothing in the way of adherents to champion its cause, and the claims put forward on its behalf are, as a rule, such as will bear the scrutiny of those competent to judge, and emerge therefrom with a reasonable chance of a measure of acceptance. Any suggestion that the diesel system of motive power holds the maximum, and steam propulsion the minimum, of advantage is, however, something that will not find favour among locomotive engineers, even on theoretical grounds, and the protagonists of the steam locomotive should have no difficulty in finding material on which to base convincing counter arguments. Consideration of this, one of the most interesting and significant of all railway traction problems, is being more frequently resorted to by those who undertake the preparation of institution papers as providing subject matter for discussion, and among the latest efforts in this direction is the paper entitled "Power to Pull; A Comparison of the Operating Characteristics exhibited by Steam and Diesel-electric Locomotives," contributed to the proceedings of the Institution of Locomotive Engineers by Mr. L. K. Sillcox and read at a meeting of that body on Wednesday, July 29; an abstract of the paper, which is based on comparative information relating to certain railways in the United States of America, will be found elsewhere in this issue.

The author, as is usual on such occasions, sets himself the task of presenting the diesel locomotive in a favourable light in comparison with the steam locomotive, and not only that but with electric traction as well. His case is largely founded on a comparison of relative costs and other data of an economic rather than a designing character as pertaining to the outlook of the railway mechanical engineer; but he does not exclude, nor could he reasonably do so, points concerning the differences in principle and the conditions which apply to the separate types of prime movers on practical grounds as well. He cites the life of a diesel locomotive as fifteen, and that of a steam locomotive twenty-eight, years, qualifying these apportionments by a statement to the effect that such figures are largely a matter of conjecture, a reservation with which we are fully in agreement. Indeed, we might add that as applying to the steam locomotive it falls wide of the mark in point of conservatism. When later, in dealing with the subject of depreciation, reference is made to locomotives built fifty years ago and still in use, but in which "nothing of the original engine remains," we feel constrained to observe that locomotives built in this country, and built to last, can give many more years of useful service than this. No engineer of standing, including the author of the paper, would, however, base his contentions on the plea that either the one type or the other was to be judged on how long the parts can be made to hang together and, in any case, the veteran locomotive is not expected to play any but a very small part in discussions of this sort.

The main consideration is something much more fundamental than that, namely: what are the respective merits of the two systems from the railway operative point of view, of what in the end boils down to a matter of internal *versus* external combustion of fuel; in short, is the diesel locomotive going to oust the steam locomotive or is it not, and, if the former, how soon and in what measure? Which method is the better for moving the traffic under modern conditions; that is the issue for consideration. From the viewpoint of the railway economist Mr. Sillcox's paper is one of considerable value and enlightenment, and those who base their understanding of these matters on practical experience, which means those who build and run the trains, will, we believe, credit him with broadmindedness in presenting the case. He is, for instance, quite right in stressing the high availability of the diesel locomotive, but at the same time we take leave to doubt the validity of his statement that such units can show a 95 per cent. availability as against only 68 per cent. on the part of the steam locomotive. In common with other champions of the diesel system, Mr. Sillcox attributes the advances made during recent years in steam locomotive design and manufacture to the competition of the other type, just as the improved internal appointments of the modern railway carriage are said to be due to the competition of the long-distance road coaches. We have carefully noted what the author has to say under the heading of Comparative Acceleration Characteristics, where, aided by some acceleration curves, he sets out to show that a diesel locomotive of 4,000 h.p. is superior to a 4-6-4 type steam locomotive of approximately equal power, in that it could maintain punctual running with a heavier train and could accelerate to maximum speed in less time. We should want to know more about the particular class of 4-6-4 engine used before attaching too much importance to the comparison.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

The Future of Transport

25, Victoria Street,
London, S.W.1
July 29

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I have read with interest the paragraphs contained in your issue of July 24, headed "Future of Transport" and "Destroying Potential Railway Traffic," and while quite agreeing with your conclusion that wartime requirements may effect, detrimentally and permanently, our post-war railway traffic, would venture to suggest that this contention alone could hardly be accepted as an adequate ground for rejecting the revolutionary changes now being effected. I suggest, however, that there are other and stronger reasons. The old competitive system had two great and valuable advantages: —

(*a*) It insured, by virtue of competition between different firms, adequate incentives for efficiency and economy in manufacture and enterprise in marketing;

(*b*) It gave to all consumers ample opportunity for selecting consumers' goods according to personal preferences and requirements.

Any such scheme as is now proposed for national marketing must tend to destroy these advantages and the ultimate consequence must be serious, and may be fatal, both in the sphere of production and that of consumption. There is another point which seems to me of great importance and which is suggested by your reference to the Biscuit Trade. I believe that the northern firms located in Scotland make much wider use of oatmeal than the Southern firms, and the latter probably make more use of wheatmeal than the northern firms. This fact, if it is so, reflects, of course, the nearest and most suitable source of supply of raw materials, for Scotland is by far the chief grower of oats. In other words, variations in type and material of manufacture in different localities are not necessarily or usually, of casual origin, but are based on actual facts of greater importance than any considerations connected with transport.

Yours truly,

CHARLES STUART-WILLIAMS
Chairman,
The British Railway Stockholders Union Limited

WIDENING OF THE SAIMAA CANAL.—The Saimaa Canal, which connects the lake of that name with Viipuri Bay in the Gulf of Finland, through a forest district with some industries, is being widened to admit 1,300-ton barges. The canal, which was constructed between 1846 and 1858 for 300-ton barges, had 88 locks. The Finnish Government carried out widening on a small scale after the war of 1914-19, and in 1927 was ready with a large scale plan of improvements, whereby the number of locks was to be reduced to nine. The work, estimated to cost 320 million Finnish marks (£1¾ million) was taken in hand, and in 1939 was partly completed; out of the nine locks five were finished and two nearing completion. The Russo-Finnish war stopped the work and during the hostilities three of the five completed locks were destroyed. The district then passed under Russian control. The Finns recovered this territory last year, and it is now reported that work was restarted at the beginning of the present year.

The Scrap Heap

Trains and Classes

The following extracts are from an article by Mr. J. B. Priestley in *The New Statesman & Nation*:—

I have seen the first class carriages on empty trains successfully invaded by unchallenged holders of third class tickets. I have seen people who had no white tickets kept out of half-empty firsts when the rest of the train was packed. I have stood for hours in the corridor, holding a first class ticket, when the firsts were obviously filled with green-ticket holders. I have seen, in one compartment on a single journey, one person compelled to pay the extra fare, and another person left in peace without any such demand. I have seen people put into firsts and other people turned out of them. I have overheard hundreds of people telling each other that now in wartime there is no difference between firsts and thirds. I have also heard much argument, a great deal of bewildered or bitter comment, and mutterings that suggested that the class war was in sight.

The 2s. 6d. seats at the cinema are not suddenly invaded by people who have bought 1s. seats. There are no bitter arguments at the entrance to the grandstands of football grounds. Grocers do not find themselves handing over 3s. tins of salmon to customers who have paid for 1s. 6d. tins. The haberdasher who sells two different qualities of shirts, collars, and socks is not made to feel that he is exacerbating the class struggle. It is only in trains that there is this trouble. And it is only since the war began that the railway companies have had to face it.

What is the reason? First, of course, that there is a genuine muddle, due to the working of an uneasy compromise; no definite line has been drawn between first and third class travel. But this does not explain the bitterness. I believe that the trouble is caused by the particular terms that are used. If the railway companies sold Big Seats and Little Seats (which is what the difference really amounts to), I do not think there would be any of this resentment, just as there is no resentment at the differently priced and situated seats in the cinema. What does the mischief is simply the use of the term *class* in this connection. It suggests that first class carriages are reserved for a different *kind* of people, just as in our army we still suggest that officers are a different *kind* of men from those in the ranks.

In the large cinemas, run by men who understand the contemporary public, seats are sold at different prices, to suit individual tastes and pockets, but the arrangements are such as to suggest that all the patrons are roughly the same kind of people. It is the same with the popular catering establishments, big stores, and so on. They already have the air of existing in a classless society, socially if not economically.

Meanwhile, what about Big Seats and Little Seats, Wide and Narrow, Hard and Soft, anything but First Class and Third Class? (*See editorial note, page* 121)

* * *

It is possible to create, haphazard, any kind of public office, without bothering in the least about what its duties are going to be, or having any idea what to do with it. But after a time the office in question will be sending and receiving letters, keeping registers, and piling up files. It comes alive, prospers, and keeps everyone in its neighbourhood busy. In a year it becomes indispensable. Such is the characteristic and sublime spirit of bureaucracy, which is eminently creative and endowed with a great deal of vitality. Give me a sheet of paper, it says, and I'll soon make whole archives for you.—*From "Spaniards' Way," by Pittorio G. Rossi.*

* * *

Latest return of the Chief Registrar of Friendly Societies reveals that 947 building societies are operating in Britain. They range in size from the Halifax, with assets of £125,000,000, to tiny one-town societies with assets of less than £1,000.

* * *

Hitler's Scroungers

Railway pilferers are fifth columnists and "scroungers" playing Hitler's game, Mr. P. Noel-Baker, Parliamentary Secretary, Ministry of War Transport, told the National Conference of Express Carriers recently.

* * *

"Be on Your Guard"

Those who were impressed by that important contribution to wartime film propaganda, "Next-of-Kin," will approve of the warning against careless talk which is given by the loudspeaker announcer at Kings Cross Station: "Passengers are asked to remember that careless talk costs lives—be on your guard." Who knows but that this final send-off to travellers may have the effect of reminding them that "that *nice* man" in the corner of the compartment (who "*must* be all right") may not be, in fact, just what he hopes to appear?

* * *

Five thousand tons of scrap iron, a quarter of a million bricks, and sufficient timber to repair the damage to the buildings, have been recovered by the Engineer's Department from an L.M.S.R. depot in the London area which was severely damaged in an air raid. A disused viaduct and a mile of disused sidings in this neighbourhood are also being demolished to aid the company's salvage drive, and a further proposal to recover still another 2,000 tons of iron is under consideration.

* * *

Reducing Official Verbosity

The staff of the Ministry of Home Security has recently been told not only what to include in, but also what to omit from, official documents. Civil servants are told that the words "I am directed by the Minister of Home Security to state that . . ." should be omitted, and such phrases as "I am to . . ." should be avoided so far as possible. The title of the circular should be carefully worded and introductory sentences merely repeating what is in the title should be omitted. "All circulars should set out what is to be said in direct language with no superfluities (*e.g.*, "such" instead of "of the kind under consideration"; "for" instead of "in the case of"; "therefore" instead of "in order that an estimate of requirements may be formed"). A recent circular containing 346 words was rewritten on this principle as an experiment and was reduced to 181 words.—*From "The Times."*

* * *

Approximately 450 tons of rope, string, sacking, and rags have been salvaged by the L.M.S.R. during the past three months. This includes torn and unusable coal bags which, before the war, were regarded as useless. They now go to paper-making.

"Without reserve" sales of our railways

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

CANADA

A Rolling Stock Colour Experiment

If the colours stand the test successfully, a new colour scheme, now on trial with a dining car on the International Limited, between Montreal and Toronto, will become the standard external finish for Canadian National passenger rolling stock. The body of the car is painted a warm grey, with bands of orange above and below, outlined with a darker grey; the roof of the vehicle is finished in gunmetal grey, and the underframe in black. The Canadian National insignia and lettering are painted on the side of the car in orange, bordered with dark grey, and the window frames have an aluminium finish. Hitherto C.N.R. stock has been painted an all-over dark green, which has been renewed every three years.

New Rolling Stock

The Canadian National Railways have taken delivery from the Canadian Car & Foundry Co. Ltd. of ten first class passenger cars, and fifteen more are under construction. Each car is 82 ft. 5 in. long, is carried on six-wheel bogies, and seats 64 passengers, of which 16 are accommodated in a smoking compartment, divided from the main compartment by a glass partition. From the Pullman Company 26 all-steel cars have been purchased, and these are being converted in the Port Huron shops into first class air-conditioned coaches for use on international runs to and from Chicago and New England. Also, 1,400 40-ton box cars have been ordered from the National Steel Car Corporation. The Canadian Pacific Railway has received recently four locomotives of Class "G-3-g" from the Canadian Locomotive Company, and has ordered five 1,000 b.h.p. diesel-electric shunting locomotives from the American Locomotive Company. Delivery has been taken also from the Canadian Car & Foundry Co. Ltd. of the frames for four first class coaches, which, with other stock, have been completed at the C.P.R. Angus shops.

UNITED STATES

The Missouri Pacific 1942 Programme

Development work now in progress on the Missouri Pacific RR. is estimated to call for an expenditure of $10,000,000 during 1942. It includes the laying of 220 miles of main lines with new rails, and 230 miles of secondary lines with displaced main-line rails; the complete rebuilding of eight steam locomotives and the modernisation of a number of others with mechanical stoking, roller bearings, and other improvements; the building of 10 cars of the baggage-coach type and 20 all-steel cabooses, and the reconditioning of 2,377 freight cars on modern lines; the extension of centralised traffic-control and additional installations of automatic block-signalling; the replacement of several bridges; and extensive realignments of track to permit higher speeds.

Bridge Strengthening on the B. & O. RR.

A comprehensive programme of bridge-strengthening has just been completed by the Baltimore & Ohio RR. on its West Virginia and Pittsburgh branch, which carries a heavy coal traffic. On the 71½ miles between Burnsville and Richwood, 45 bridges have been strengthened or replaced. The biggest tasks have been the rebuilding in steel and concrete of three timber-trestle viaducts near Flatwoods, Gillespie, and McCarty, respectively, 330 ft., 351 ft. and 420 ft. long, and of maximum height of 45 ft., 46 ft. and 60 ft. Further large-scale bridging work has been required by the relocation of a B. & O. line in the Mahoning Creek region of Western Pennsylvania, 40 miles north of Pittsburgh, in connection with one of the Federal Government's many flood-water control schemes. This has required a new viaduct at Loop, 618 ft. long, and with a maximum height of 67 ft. Steel from the displaced Loop viaduct has been worked into the Flatwoods and McCarty bridges.

Pennsylvania Flood Damage

The last week-end in May saw a period of normal rainfall in the State of Pennsylvania, succeeded by a torrential downpour of cloudburst proportions in the mountains east and south of Scranton on the night of Friday, May 22, affecting particularly the Lackawanna, Lackawaxen, and Lehigh valleys. All of these carry railway routes which were severely damaged by washouts. Along the main line of the Lehigh Valley RR. from Easton to Mauch Chunk the railway service was interrupted for 24 hr. for a distance of 150 miles from Easton, and full service was not restored till the following Monday morning. On the Central of New Jersey RR. main line, traffic was suspended between Easton and Mauch Chunk on the Friday night, and was not restored until Sunday night, and then over one track only; and between Mauch Chunk and Scranton, where 17 miles of line were badly damaged, it was some days before running could be resumed. The Erie, and the Delaware, Lackawanna & Western lines were not so seriously affected, though both they and the Delaware & Hudson, and New York, Ontario & Western Railroads, entering the Scranton-Wilkes-Barre area from the north, suffered complete interruption of freight traffic on certain routes, on which major reconstruction was necessary before the service could be resumed. The Philadelphia and the Reading Companies also had to contend with washouts on several of their lines. When operation of the Lackawanna main line through Scranton was once again practicable, after an interruption of 5 hr., arrangements were made for this route to handle the trains of the L.V., C.N.J., D. & H., Erie, and N.Y.O. & W. Railroads through the Scranton area between Binghamton and Manunka Chunk until the communications of the other companies were restored, and admirable arrangements were made to relieve the serious congestion caused in this mining area by the flood damage.

Level Crossing Accidents

Figures recently published by the Bureau of Statistics of the Interstate Commerce Commission show that 1941 was a bad year for level-crossing accidents. As compared with 1940, fatalities so caused were up by 6·8 per cent., from 1,808 to 1,931, and injuries rose from 4,632 to 4,865; against this must be set the fact that total train miles were up by 10·8 per cent., and motor car registrations were up 7·3 per cent. In 1,347 of the accidents motor vehicles ran into trains, and 74 per cent. of these collisions were at night; conversely 64 per cent. of the accidents in which trains ran into motor vehicles were in daylight. Collisions occurred most frequently between 11 p.m. and midnight, and the greatest number of fatalities were incurred between 5 and 6 p.m. In 78 per cent. of the 1941 accidents, passenger vehicles were involved; the order of frequency of all the accidents, was, first, motorbuses, then lorries, then motorcycles, and finally private cars. Roughly one-third of the accidents occurred at level crossings protected by lowered gates, audible or visible signals, or watchmen or trainmen, and all but half the crossings at which night collisions occurred were lighted; just over two-thirds of the accidents were in clear weather. The months of January, November, and December together witnessed almost exactly one-third of the accidents recorded during the year.

NEWFOUNDLAND

New Locomotives

Two new steam locomotives of the 2-8-2 type have been delivered by the Montreal Locomotive Works to the Newfoundland Railway, which operates on the 3 ft. 6 in. gauge. They have 18 in. by 24 in. cylinders, driving wheels of 4 ft. diameter, 1,768 sq. ft. of heating surface (including 118 sq. ft. in the firebox and 35 sq. ft. in thermic syphons), 426 sq. ft. of superheating surface, 35·2 sq. ft. of grate area, and boiler pressure of 200 lb. per sq. in. They are powerful locomotives for the 3 ft. 6 in. gauge, and have a tractive effort of 27,600 lb.; total engine-weight is 68 tons (53½ tons adhesive), and the engine and tender, with 5,000 gal. of water and 9 tons of coal, weigh 113½ tons. The longest continuous run in Newfoundland is over the 547 miles between St. John's and Port-aux-Basques, and the best trains, which carry sleeping and restaurant cars, take 23¼ hr. westbound and 25 hr. eastbound for the journey, with numerous intermediate stops.

BRAZIL

Railway Electrification

General railway development in Brazil has been affected seriously by the war, and electrification schemes have suffered, perhaps, most of all. When war broke out in Europe, four important plans for electrification were in course of development. These involved the electrification, and alteration of gauge, of the Paulista Railway, between Itirapina and Jau; electrification of the Rêde Mineira de Viacão, between Barra Mansa and Angra dos Reis; extension of the Central Brazil Railway electrification to Barra do Pirahy and Campo Grande; and electrification of the Sorocabana Railway, between São Paulo and Santo Antonio. Due to the progress which already had been made when war broke out, and to the stocks of material in hand, the Paulista Railway managed to complete its plan and to open the electrified section for traffic at the end of last year. The Rêde Mineira de Viaçao, however, has been able to continue work on its aerial structure only, very slowly, with the employment of national material. The Central Brazil and Sorocabana Railways have had to suspend operations, due to the impossibility of obtaining material. It is reported that the Metropolitan-Vickers Electrical Co. Ltd. abdicated its contract with the Central, in view of the exceptional conditions prevailing in England; and the company which obtained the contract for the Sorocabana electrification has not been able to commence work. During this period also,

other lines have been prejudiced in their electrification schemes. The proposed Camapuan—Andrelandia extension, to connect the Rêde Mineira de Viaçao and the Central Brazil Railway, with electric traction, has not been started. The Thereza Christina, which called for tenders for electrification, has not received a single offer.

ARGENTINA

Railway Pension Fund

The Directors of the National Railway Pension Board and the Committee of Railway Representatives & Managers have requested the Government to repeal the decree of April 24, 1941, suspending the granting of new pensions, pending the discussion by Congress of the alterations which it is proposed to make in the Pension Law, in order to place it on a solvent basis. The petitions addressed to the Ministry of Public Works, which were entirely independent of each other, point out that the suspension of the pensions was intended to be a temporary emergency measure, and that its continuance would cause hardship to a large number of railway employees who were eligible for their pensions. Attention is called to the fact that the pension fund will benefit by the increase in the tariffs, which will to some extent relieve the drain on its resources. The Pension Fund Board has issued a statement explaining that the decision to resume the granting of pensions is not due to any improvement in the finances, but has been made solely to enable the fund to fulfil its functions. According to the board's statement, the financial situation is precarious, and it is estimated that the additional income which will accrue to the fund as the result of the increased tariffs will only amount to about 5,000,000 pesos a year. The pensions paid out during the first four months of 1942 totalled 26,518,000 pesos, and the contributions received amounted to 14,977,000 pesos, leaving a deficit of 11,541,000 pesos, to meet which it was necessary to dispose of bonds to the nominal value of 12,200,000 pesos. Thus, within four months the fund has incurred a further deficit of over 11,500,000 pesos, and it is estimated that, even with the additional 5,000,000 pesos derived from the increased tariffs, the deficit, as from the month of May, will amount to approximately 700,000 pesos a week.

Professional meetings

The opening meeting of the 1942 session of the Buenos Aires Association of the Institution of Civil Engineers was held on May 21 last, and the inaugural address was delivered by the Chairman, Mr. F. W. Butler, B.Sc., M.Inst.C.E., on "The Public Services of the City of Buenos Aires." The address was followed by a short talk by Mr. H. H. Grindley, O.B.E., General Manager, Central Uruguay Railway, who gave some impressions gained during his recent visit to England and the U.S.A. The first meeting of the 1942 session of the Argentine & River Plate Centre of the Institute of Transport was held in Buenos Aires on June 2, and the inaugural address was delivered by the Chairman, Mr. G. C. Bonner, on "The Human Element in Transport."

Argentina-Bolivia Railway

A committee has been formed in Buenos Aires, with the title Comite Pro Ferrocarril Yacuiba-Santa Cruz, with the object of securing the earlier execution of the works on the proposed international railway between Argentina and Bolivia. The commercial treaty between the two countries, signed in Buenos Aires on February 6 (see THE RAILWAY GAZETTE of May 8, page 547) contains financial provision for the scheme, but this would become available only as and when the Public Works vote in the national Budget would allow, and it is believed that there is sufficient private capital now dormant in Buenos Aires, and which would welcome the formation of a joint stock company, to finance the completion of the railway and so bring the advantages of access to the raw materials of the rich country between the present termini, especially the oil of the Argentine region and the forestal wealth of the semi-tropical Santa Cruz country. With the proposed financial aid, it is believed that the railway may be completed within five years, whereas without such collaboration it may take from ten to twelve years.

SPAIN

Federated Narrow-Gauge Companies

A Decree dated February 21, published in the Madrid *Boletin Oficial* of March 9, contains the regulations for the voluntary grouping of the narrow-gauge companies in federations, as provided for in the Law of January 24, 1941. The principal features of the Decree are briefly as follow :—Each federation is to be under the direction of a delegate of the Government ; the general tariffs of all the companies in each federation are to be unified, and earnings and working expenses pooled ; net earnings will be apportioned *pro rata* to agreed capital contributed ; rolling stock is also pooled. For new works and requirements a federation may apply to the State for capital aid. The federations will have preference in granting concessions for road motor services.

The State Railway System

The Madrid daily newspaper *Ya* recently published some statistics relating to the importance of the "RENFE," or State Railway System (Red Nacional de los Ferrocarriles Españoles). The number of trains running daily on the system is 2,800, notwithstanding the shortage of rolling stock resulting from the civil war. The rolling stock owned is as follows : 3,051 steam locomotives ; 81 electric locomotives ; 85 railcars ; 68 electric railcars ; 4,114 carriages ; and 75,392 wagons and brake vans. Some 7,000,000 passengers are carried monthly, and the tonnage of goods transported daily is about 85,000 tons. The consumption of coal amounts to 2½ millions of tons a year. The number of employees on the system is 103,000, and the pay bill amounts to some 500 millions of pesetas a year.

SWITZERLAND

Cost of Station Buildings

At certain times of financial difficulty for the Swiss Federal Railways, newspaper writers and authors of political pamphlets have accused the management of spending too much money on station buildings, either on unnecessary architectural features, or in the provision of facilities on a scale not warranted by the traffic. Dr. Hess, Manager of the Zurich division, has published some comment on these charges in the railways' official journal. A curious instance of misapprehension on the part of a journalist was in the case of the Winterthur station, the exterior of which is admittedly handsome, but which is in need of improvement in other respects ; this was compared with the Cornavin Station at Geneva, and was said to be a source of annoyance to the inhabitants of the latter city. He overlooked the fact that the Winterthur station was built in the time of the Swiss North Eastern Railway, and that the Federal management bore no responsibility for it. The Enge Station at Zurich, which handles a heavier passenger traffic than do the chief stations of some of the principal cantonal towns (such as Schaffhausen, Neuchâtel, Solothurn, Fribourg, and Bellinzona), and the new Neuchâtel station also have been criticised as being extravagantly constructed. Large station buildings are readily noticed by the public, but they form a relatively small proportion of the total costs of a railway, or even of a station layout in general. At Neuchâtel the total cost of the station buildings was not 10 per cent. of the whole, and even the most expensive station buildings erected by the Federal Railways have not cost as much as many schools erected by public authorities. In addition, the towns have frequently contributed to the cost of new stations, and have approved of the plans for them ; and in numerous instances appreciable rents have been obtained from letting office and shop accommodation therein. It is undeniable also that well-built and attractive stations assist in bringing traffic. Contrary to what is commonly supposed, the total figures of annual engineering expenditure, neglecting those due to electrification, have not varied much since the formation of the Federal Railways in 1902. A valuation made in 1940 shows that the station buildings represent only 7 per cent. of the total sum attributable to plant, structures, rolling stock, and general equipment.

BELGIUM

Belgian National Railways

The Belgian National Railways returned for 1941 working receipts amounting to fr. 2,440,000,000, compared with fr. 1,513,000,000 for 1940 ; gross receipts totalled fr. 2,528,000,000, as against fr. 1,639,000,000 for 1940, but operating expenditure was fr. 3,180,000,000 against fr. 2,312,000,000 for the preceding year, so that there was a deficit of fr. 652,000,000. Gross passenger revenues amounted to fr. 769,000,000 ; goods revenues to fr. 1,558,000,000 ; fr. 54,000,000 were received in interest (fr. 25,000,000 in 1940) ; and the revaluation of securities brought in fr. 34,000,000 (fr. 100,000,000 in 1940). The State bore the cost of war repairs (fr. 627,000,000), and an amount of fr. 200,000,000 still to be spent in 1942. The cost of the German occupation, fr. 104,000,000, has been taken over also by the State. An increase in passenger fares of 20 per cent. has been approved, but an application for a similar increase in goods rates was rejected.

FAR EAST

Manchurian Shipping

The Manchurian Government has established a Manchurian Steamship Company with a capital of 15 million Yen (£650,000) to operate shipping lines between Manchuria and ports in Greater East Asia. Besides the Government, 18 Japanese shipping firms, including the South Manchurian Railway Company, participate. The ports to be used in Manchuria are Yingkou (Newchwang) and Dairen, the latter in Japanese Kwantung. The Japanese Government has agreed to grant priority for the building of the ships required ; in fact the whole scheme is, of course, sponsored by the Japanese Government.

Operating Characteristics of Steam and Diesel Electric Locomotives

A comparison based on U.S.A. experience made in an address to the Institution of Locomotive Engineers

Before the Institution of Locomotive Engineers on July 29 Mr. Julian S. Tritton, on behalf of Mr. L. K. Sillcox, first Vice-President of the New York Air Brake Company, read a paper entitled " Power to Pull : a Comparison of the Operating Characteristics Exhibited by Steam and Diesel-Electric Locomotives." In the course of the paper he said that a new motive-power type, the diesel-electric locomotive, had arisen effectively to challenge the supremacy displayed for a century by the reciprocating steam locomotive. Electric traction was preferred by many in heavy traffic zones but the diesel-electric displayed identical operating characteristics as the electric locomotive except that its maximum capacity was limited to that of a portable power plant.

The case for steam power in sparsely-populated territory of easy grades, for example, was very strong. On the other hand, electrification faced no opponents in terminal areas where steam power was excluded by municipal ordinance. This was not true of the diesel-electric *versus* steam controversy except in cases where steam was prohibited by legislation. The wide original cost advantage which the steam locomotive had enjoyed over its diesel-electric counterpart was constantly being narrowed as the cost of steam power increased with refinements designed to increase operating efficiency, and diesel costs were reduced through standardisation and mass production methods. Neither excelled to the point of total exclusion of the other. The result was that the evaluation of their merits for a given assignment was more difficult and entailed a most exacting study before a logical selection might be made. The diesel-engine locomotive was an effective compromise between electrification and steam power.

Capital Investment

Because of the more favourable availability characteristic exhibited by the diesel, where it was utilised a given traffic volume could be moved with a smaller motive-power inventory, thereby requiring less capital investment if first costs were comparable. However, the original cost of a diesel-electric unit was greater than that of its steam competitor so no clear gain was indicated by the substitution of a reduced number of diesels for steam-power. Steady progress in design and production methods, partially effected by increased production volume, had gradually reduced the initial cost of diesel locomotives to approximately £18 4s. 7d. a horse-power as contrasted with approximately £7 5s. 10d. a horse-power cost for steam power. Partially to offset this decided cost advantage of the steam locomotive was the higher availability, and resulting more intensive utilisation, possible with diesel power. The average mileage figures for the competitive types in passenger service were :—

Type	Average annual mileage	Maximum monthly mileage
Diesel-electric	250,000	27,000
Steam	180,000	18,000

In other words, 18 diesel-electric units would replace 25 steam locomotives of comparable capacity. If the assignment were such that either of the two locomotives whose horse-power characteristics were presented in Fig. 1 could be selected, the 18 diesel-powered units would require a capital investment of over £520,832 6s. 8d. greater than would the 25 steam-powered units. Because of the lack of experience data, the life of a diesel locomotive was a matter of conjecture but had been tentatively estimated to be 15 years, a value that might be revised upward as experience accumulated. Contrasted was the widely accepted service life of a steam locomotive of 28 years. Yearly depreciation charges for each installed horse-power were, then, 5s. 2d. and £1 4s. 3d. for the steam and diesel types. For the above locomotives, yearly depreciation would reach £4,861 for the diesel, and but £1,120 would be charged against the steam unit. Competition had encouraged steam locomotive improvements which had forced upwards the purchase price while the introduction of mass-production methods and adherence to standardisation had enabled the diesel-electric manufacturers to lower their prices. Ten years ago the ratio favouring steam power had been 4 to 1 ; to-day it was but 2½ to 1 and there was no evidence to indicate that the trend would not continue.

Depreciation rates could not be determined with strict confidence because of lack of experience data of the diesel, and because there was still controversy relative to steam-locomotive life, even after over 100 years of accumulated experience. Locomotive components were often replaced a part at a time to perpetuate the machine and this practice was the basis for the " no depreciation account " which had been advocated in some quarters. At first thought, one might be inclined to agree with this extreme view, but it was not difficult to discern the fallacy involved, although possibly the term " obsolescence " should be substituted for " depreciation." By proper maintenance, a steam locomotive could be maintained in such degree of mechanical efficiency as to be judged satisfactory when viewed in the light of efficiency standards obtaining at the time of its manufacture, and the unit would not have been " depreciated " to the scrap heap. But advances might be accomplished in locomotive design or, just as important, operating demands might be increased to such extent as to render the locomotive economically unjustified and it was scrapped because of obsolescence. In any event, experience had demonstrated the average life of a steam locomotive to be approximately 28 years, whatever term might be chosen to explain its removal from service. The competition which had narrowed the cost advantage of the steam locomotive had produced a more efficient unit, obtained at a price well compensated for by more economical operation and intensified utilisation, factors which were tending to revise downward average service life (in years and not in miles) of steam power.

Water Costs and Consumption

The diesel-electric, burdened by a disproportionate initial cost, and consequent

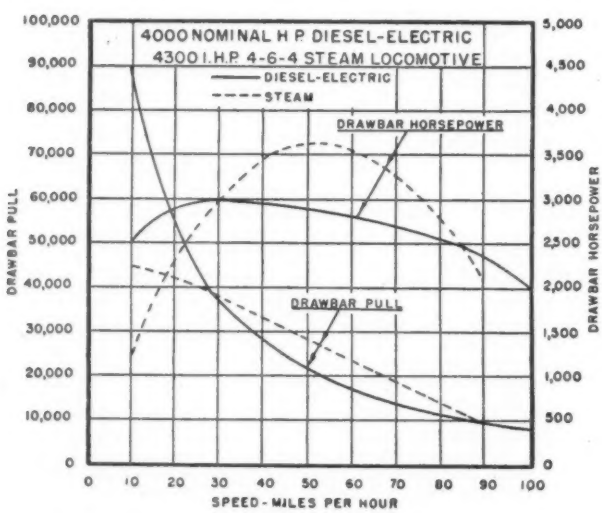


Fig. 1—Comparative drawbar horse-power and drawbar pull curves

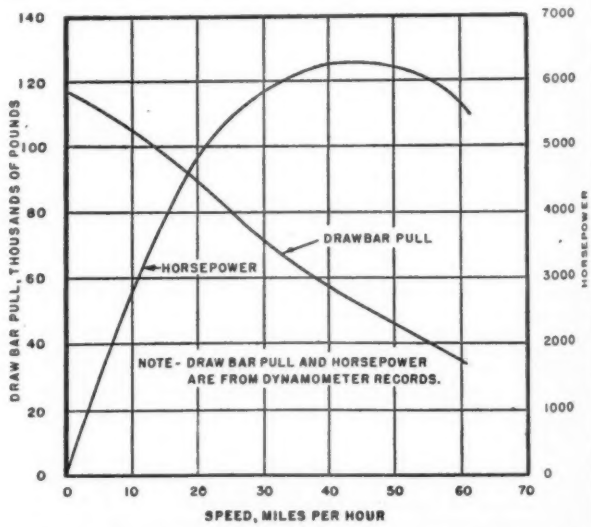


Fig. 2—Drawbar pull and horse-power curves of Norfolk & Western 2-6-6-2 simple articulated steam locomotive

fixed charges, offered compensating advantages. An example was the lower water costs incurred in the utilisation of diesel power. Water costs as applicable to the steam locomotive were often 10 per cent. of the fuel charge, a very appreciable item of expense.

Steam Locomotive Performance

Reference had been made to the improved efficiency and increased capacity of the modern steam locomotive, a trend which had been accelerated by diesel-electric competition. Full credit could not be given the motive power for the gains recounted below—improved rights of way and more efficient operating practices were essential—but the programme was dependent on the locomotive's ability to support the more intensive utilisation demands. A striking example of what could be accomplished when all components affecting operating results were intelligently administered and energetically surveyed was that of the Norfolk & Western, a heavy-traffic coal line operating from the Blue Ridge and Allegheny mountain ranges east to tidewater at Norfolk, Va., and west to Cincinnati and Columbus, Ohio. In 1925 the Norfolk & Western handled a business of 27 billion gross ton-miles with 653 road locomotives, and in 1940 this same railway handled a business of 30 billion gross ton-miles, an increase of 12 per cent., with 347 road locomotives, a decrease of 3/6 units or 47 per cent. In 1925 gross ton-miles for each train hour were 32,212 but by 1940 this figure had increased to 57,984, an increase of 80 per cent.

The improved boiler efficiency was demonstrated by the reduction in unit fuel consumption. The pounds of coal consumed each thousand gross ton-miles have decreased from 147 in 1925 to 89 in 1940, a reduction of 39 per cent. during the 15-year period. Improved dependability was shown by the reduction of freight-locomotive failures from 388 to 74, a decrease of 81 per cent., during the same period. At the same time, miles per freight-locomotive failure more than tripled; they increased from 34,892 to 114,970. Many had maintained that the added refinements and auxiliaries built into modern steam power would increase measurably maintenance costs. This was not true in the case of the Norfolk & Western where maintenance cost each million tractive-force pound-miles decreased from £1 10s. 7d. in 1925 to £1 0s. 9d. in 1940, a reduction of 32 per cent. On the basis of 1,000 gross-ton miles, the maintenance cost in 1925 was 1s. 3d., and in 1940 it was 8d., a decrease of 48·7 per cent. The cumulative effect of these savings was reflected in the net earnings account where an 18 per cent. increase was indicated with gross earnings for the two years remaining unchanged. In Fig. 2 have been plotted the drawbar pull and horse-power curves of a Norfolk & Western locomotive design which had contributed to the foregoing enviable record.

Comparative Acceleration

Fig. 3 presented a comparison of the performance exhibited by a steam locomotive of 4-6-4 wheel arrangement and a 4,000 h.p. diesel-electric unit when operating over the same territory. These two locomotives were assigned to identical services and produced approximately the same amount of effort during the course of a run; the exception was that, when necessary, the diesel-electric could maintain on-time performance with a heavier train. The operation illustrated by the two charts provided a comparison of the relative merits of steam and diesel-electric locomotives with heavy trains and was based on full capacity output inasmuch as the trains were a few minutes late in each instance. It would be noted that, with 13 cars, the steam locomotive required 9 min. to accelerate to its maximum speed of 69 m.p.h. as contrasted with the diesel-electric's ability to attain a speed of 73 m.p.h. with 14 cars in 8 min. Further, that the diesel-electric reached the steam locomotive's maximum speed in 7 min. If these graphs were extended to include a distance of 13 miles, they would demonstrate that the diesel-electric required 2 min. less than did the steam-powered train to cover that mileage.

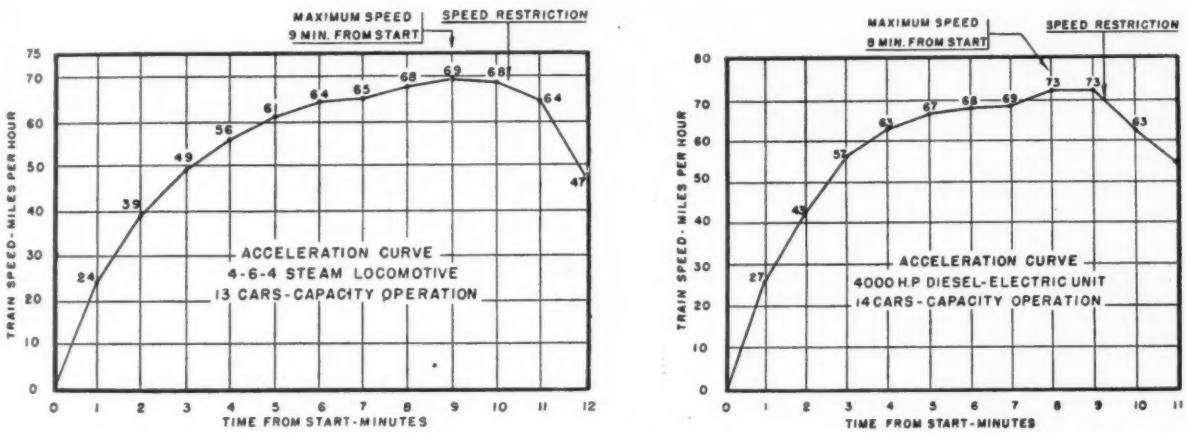


Fig. 3—Comparative acceleration curves

Horse-power and Tractive Effort

Comparative driver horse-power and tractive effort curves were presented in Fig. 4 of a steam locomotive which developed, at a maximum, 5,000 cylinder h.p. and of a diesel-electric rated at 5,400 h.p. These curves might be compared with those of the two motive power types as illustrated in Fig. 1. In Fig. 1 the plotted values were taken at the drawbar, hence the effect of the difference in weight of the two units was reflected through the medium of locomotive resistance. These two sets of curves demonstrated clearly the superior power characteristics of the diesel-electric throughout the low speed range below approximately 30 m.p.h. and at once explained the greater accelerating capacity of this motive-power type.

Inasmuch as most shunting operations were made in the low-speed range where the diesel's excess tractive capacity might be utilised, the steam locomotive was at such a decided competitive disadvantage that, when added to other inherent advantages of the diesel in yard service, the diesel was almost universally displacing steam power when new units were necessary or judged economical. Fig. 5 demonstrated the tractive-effort characteristics of six shunting locomotives; three diesels designated A, B, and C, rated at 1,200, 900, and 600 h.p. respectively, and three steam classes N, O, and P, of 0-8-0, 0-8-0, and 0-6-0 wheel arrangements, developing 2,100, 1,500, and 1,300 h.p. respectively. For all shunting speeds up to 6 m.p.h., the 1,200 h.p. diesel, Class A, delivered higher torque and thus could accelerate maximum tonnage more rapidly than could a steam locomotive of 2,100 h.p. Its superiority over a steam locomotive of 1,500 h.p. extended to 7 m.p.h., and in comparison with the 1,300 h.p. steam locomotive, the Class A diesel excelled at all speeds up to 11 m.p.h. As most shunting operations were conducted at speeds below 6 m.p.h., the diesel enjoyed a definite advantage over its steam counterpart.

On the basis of the foregoing representative availability values, five diesel shunters would replace seven steam locomotives. Further, as previously stated, the relatively low speeds operated in yard service fell within the speed range in which the diesel exhibited its greatest tractive-effort values and could, therefore, with a given h.p. rating, perform equally as well as a steam locomotive of considerably higher h.p. rating (which was developed at greater speeds). For example, diesels of 600 h.p. had regularly performed the yard operations of a 1,400 h.p. steam design. With diesel power costing £18 4s.7d. a horse-power and steam locomotives £7 5s. 10d. a horse-power, capital investment for the alternatives would be :—

Diesel : Five 600 h.p. units at £18 4s. 7d. a horse-power = 5 × 600 × 87·50 = £54,687.

Steam : Seven 1,400 h.p. units at £7 5s. 10d. a horse-power = 7 × 1,400 × 35 = £71,460.

This represented a saving of £16,773 in favour of the diesel locomotive. This condition did not hold for road power, however, due to the higher operating speeds, and the diesel investment was invariable greater than that required for steam.

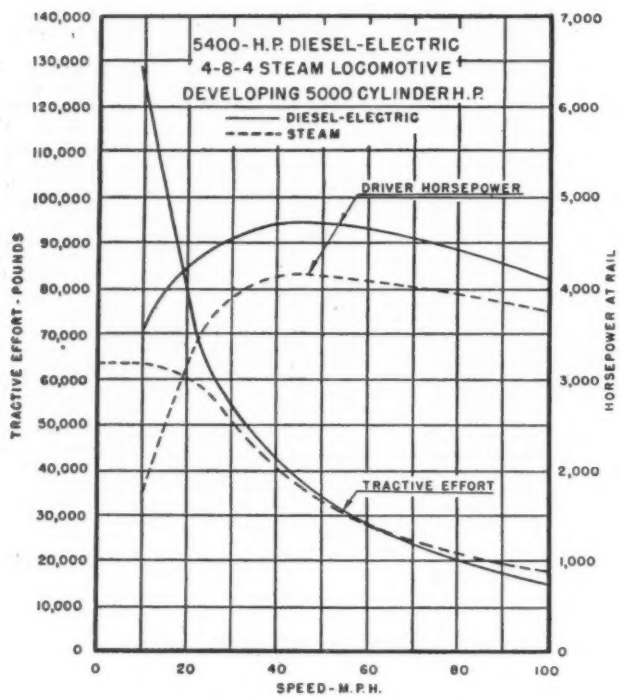


Fig. 4—Comparative driver horse-power and tractive effort curves

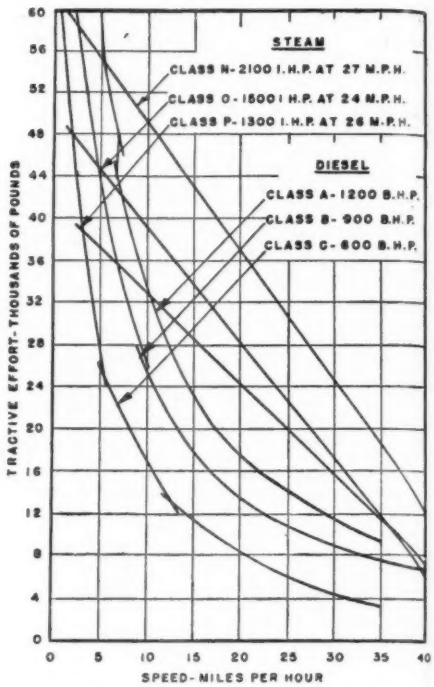

STEAM
CLASS N - 2100 I.H.P. AT 27 M.P.H.
CLASS O - 1600 I.H.P. AT 24 M.P.H.
CLASS P - 1300 I.H.P. AT 26 M.P.H.
DIESEL
CLASS A - 1200 B.H.P.
CLASS B - 900 B.H.P.
CLASS C - 600 B.H.P.
TRACTIVE EFFORT - THOUSANDS OF POUNDS
SPEED - MILES PER HOUR

Fig. 5—Switching and transfer locomotive comparisons

Neither did it hold in yard service if motive-power inventory was sufficient to support the five to seven advantages displayed by the diesel. This fact was illustrated by the following data which had been selected at random from actual displacement records :

No. of steam locomotives	No. of diesel locomotives	Ratio—steam to diesel
7	5	1·40*
17	12	1·42
32	23	1·39
8	6	1·33
1	1	1·00

* Calculated—based upon availabilities of 68 and 95 per cent. for steam and diesel power respectively.

Diesel versus Steam Operating Costs

Approximately four years ago, a committee composed of representatives of one railway and two diesel-electric shunting locomotive manufacturers had been organised to determine impartially the relative operating costs of steam and diesel power in yard service. After thorough and painstaking analysis of available cost data, this committee concluded that, including fuel, lubricants, water supply, engine house expenses, and crew wages, the cost an hour of operating a 600-h.p. diesel shunter was 11s. 2d. and the similar cost if a steam locomotive were selected for the same assignment would be 16s. 3d., or a difference in favour of the former of 5s. 1d. A further credit of 4d. an hour was agreed for savings in locomotive-crew overtime and hostlers' wages, with a resulting figure favourable to the diesel of 5s. 5d. an hour operated. The saving of 4d. an hour labour charge was dependent on local conditions and was, therefore, subject to considerable variation. The preceding estimate was recorded as of interest in light of actual shunting-locomotive costs as submitted by three railways. Unfortunately, all railways did not adhere to a uniform accounting system, a fact which had to be borne in mind when comparing such data. It was noted that diesel shunting-locomotive hourly costs were less in all accounts with the exception of the relatively small lubrication expense where it was 50 per cent. greater than the amount chargeable to the steam locomotive, and that the total saving an hour approximated 7s. 3d.

Hourly shunting locomotive costs

Railway A—600 h.p. diesels

	Steam	Diesel	Diesel saving
Fuel	40·05d.	11·2d.	28·8d.
Water and other supplies	8·25d.	25d.	8d.
Lubricants	1·3d.	2d.	7d.
Engine-house expense	19·65d.	1·9d.	17·7d.
Repairs	47·5d.	13·8d.	33·6d.
Total	9s. 8·75d.	2s. 5·2d.	7s. 3·55d.

Railway B—600 and 1,000 h.p. diesels

	Steam	Diesel	Diesel saving
Fuel	56·0d.	18 5d.	37·5d.
Water, lubricants, and other supplies	10·0d.	4·0d	6·0d.
Engine-house expense	23·5d.	2·0d.	21·5d.
Repairs	65·5d.	21·5d.	44·0d.
Total	12s. 11d.	3s. 10d.	9s. 1d.

Railway C—1,000 h.p. diesels

	Steam	Diesel	Diesel saving
Fuel	53·2d.	16·3d.	36·8d.
Water, lubricants, and other supplies	5·6d.	1·6d.	4·3d.
Engine-house expense	11·4d.	2·2d.	9·2d.
Repairs	53·1d.	27·5d.	26·2d.
Total	10s. 3·3d.	3s. 11·6d.	6s. 4·5d.

In analysing the operating costs of the diesel-electric passenger locomotive as compared with the steam locomotive, shown in the table below, allowance had to be made for the fact that the diesels were operated in high-speed service and the steam locomotives were handling heavy-weight trains at lower rates of speed : consequently, if the steam locomotives were required to operate at the same speeds as the diesels, even though they were handling light-weight trains, the fuel and repair costs would have increased.

Passenger locomotive operating data (January to October, 1941, inclusive)

	Steam	Diesel	Diesel saving
Mileage	2,212,872	2,813,522	—
Availability—per cent.	75	90	—
Utilisation—per cent.	53	90	—
Average number of loco. in service	17	7	—
Average cost per loco.	£37,290	£76,040	—
Date built	1938	1936–1941	—

Per Mile Costs

	Steam	Diesel	Diesel saving
Repairs	9·5d.	8·0d.	1·5d.
Depreciation	2·0d.	5·0d.	3·0d.
Fuel	8·5d.	5·0d.	3·5d.
Lubricants	1·0d.	1·0d.	—
Water and other supplies	1·0d.	0·4d.	0·6d.
Engine-house expense	1·0d.	0·6d.	0·4d.
Wages of enginemen	7·5d.	6·0d.	1·5d,
Total cost per loco. mile	30·5d.	26·0d.	4·5d.

The following passenger train and locomotive costs were submitted by another railway as being applicable to those sections of its system over which steam and diesel-electric locomotives operate in comparable service.

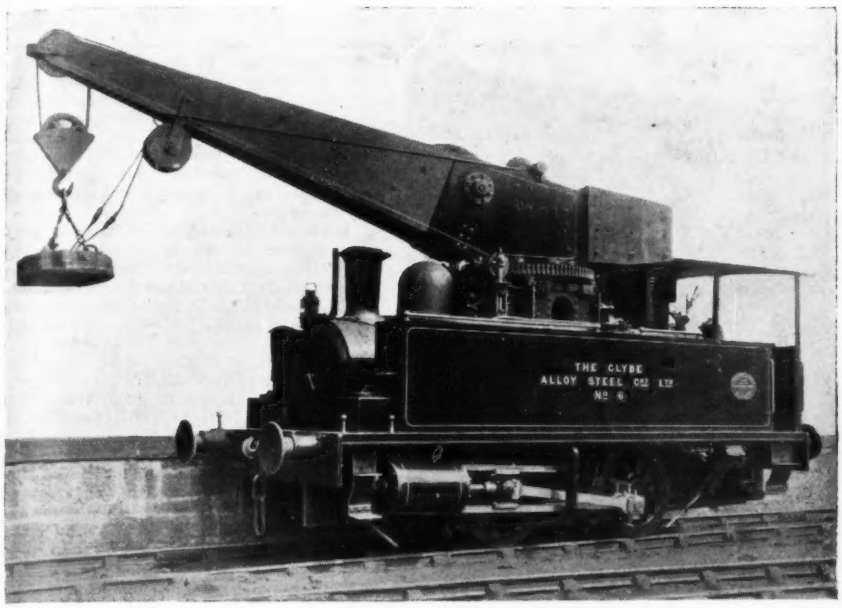
Total costs of operating passenger trains

	Steam	Diesel	Total diesel saving
Train-miles operated	325,378	237,626	—
Loco.-miles inc. helper and d'heading	382,637	252,129	—
Loco.-miles per train-mile	1·185	1·062	—
Loco. and train wages	£17,770	£13,594	£4,176
Fuel	£13,703	£8,367	£5,336
Water, lub., and supplies	£1,892	£1,757	£135
Train sup. and exp.	£8,653	£8,653	—
Helper and d'heading	£7,928	£2,648	£4,280
Car repairs	£8,141	£8,141	—
Loco. repairs	£18,930	£10,396	£8,534
Third man on diesel	—	£1,732	£ 1,732
Total train	£76,867	£55,985	£21,643
Total loco. (incl. train wages)	£60,139	£38,496	£21,643

(*Concluded on page* 131)

A New Development in Crane Locomotive Design

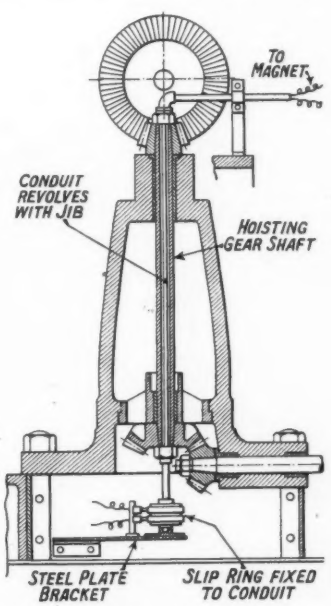
Fitted with self-contained magnetic lifting equipment



THE well-known Kilmarnock firm of Andrew Barclay, Sons & Co. Ltd. has just completed and fully tested a new and patented type of crane locomotive built to the order of a large steel works. In this class of locomotive the crane is usually mounted on a pedestal or stool fitted to the locomotive frame at the middle of the wheelbase and saddled over, but clear of, the barrel of the boiler. In the older designs the slewing engines and hoisting engines were mounted on the boiler barrel, but in this firm's latest designs the engines are carried by the crane stool and are unconnected with the boiler. Two types have been standardised; one to lift 5 tons at 16 ft. radius, the locomotive cylinders of which are 14 in. dia. × 22 in. stroke, and the other to lift 3 tons at 23 ft. 6 in. radius, with locomotive cylinders 11 in. dia. × 18 in. stroke.

The development now introduced is the addition of self-contained magnet lifting equipment. This will materially increase the sphere of usefulness of the crane locomotive, especially in such work as the handling of scrap iron and steel, ingots, ingot moulds, plates, sections, pig iron, and so forth. In these operations it eliminates the necessity for slinging, filling of skips, and bundling, and this means a considerable saving in time apart from the fact that the services of a slinger and other men are dispensed with; the whole operations of loading the crane, lifting, transporting, and dropping the load are carried out by the driver alone. Time may also be saved in the handling of scrap, pig iron, and small parts by dropping them from the magnet without lowering it at the point of delivery. This type of magnet crane is of great advantage in works or shipyards where quantities of steel plate and angles, etc., are being constantly handled.

The addition of the magnet introduced the problem of how to carry the current from the generator set to the magnet at the end of the revolving jib. This was successfully solved by making the central vertical shaft of the hoisting gear hollow and passing through it a conduit tube to carry the cable. The conduit tube revolves with the jib, and the shaft is free to revolve around it as required in the process of hoisting and lowering. At the bottom end of the conduit tube is a disc of insulating material carrying two slip rings connected to each of the cables for energising the magnet. These slip rings are supplied with current by brushes connected to the generating set. This construction is shown diagrammatically below and is the subject of letters patent.



Details of self-contained magnet lifting equipment

For connecting the magnet to the cable of the jib two single-core extra-flexible cables are used, wound on to, and unwound from, a spring-operated cable drum of the usual construction. The current for operating the magnet is supplied by a turbo-generator set mounted on one of the side tanks of the locomotive; this is supplied with steam from the locomotive boiler and uses only a small amount of steam; the boiler steaming capacity is ample for all duties of the crane locomotive. An illustration of a crane locomotive of the type under review is given. The magnet and electrical control gear on this particular locomotive are of Witton-Kramer manufacture, and the turbo-generator set is a Greenwood & Batley product. The unit is enclosed in a weatherproof casing in which special provision is made for ventilation of the generator. A special arrangement is provided for cooling the bearing oil of the turbo-generator which runs at high speed. The oil is circulated through a coil of pipe immersed in the water in the locomotive tank.

The locomotive is an Andrew Barclay standard 5-ton type, but the addition of the lifting magnet which, with its appliances, weighs 18 cwt. reduces the lifting capacity of the locomotive to 4 tons 2 cwt. at 16 ft. radius. If it were desired to lift 5 tons this could be done by temporarily discarding the magnet or, alternatively, the length of the jib could be reduced to 13 ft. 6 in., in which case 5 tons could be lifted with the magnet or a greater load without it. The locomotive cylinders are 14 in. dia. × 22 in. stroke, giving a tractive effort of 14,200 lb. at 85 per cent. boiler pressure, so that it is an effective shunting engine. The weight in working order of this magnetic crane locomotive is 42 tons 14 cwt. A locomotive of this kind can be used without the magnet for all duties ordinarily performed by a crane locomotive by uncoupling the energising cable and unhooking the magnet.

Operating Characteristics of Steam and Diesel Locomotives—

(*Concluded from page* 130)

Locomotive expenses per train mile (including train wages)

	Steam	Diesel	Diesel saving
Loco. and train wages	13·1d.	13·7d.	— 0·65d.
Fuel	10·1d.	8·4d.	1·65d.
Water, lub., and supplies	1·4d.	1·77d.	— 0·37d.
Helper and d'heading	5·8d.	2·6d.	3·17d.
Loco. repairs ...	14·0d.	10·5d.	3·45d.
Third man on diesel	—	1·75d.	— 1·75d.
Total	3s. 8·4d.	3s. 2·72d.	5·5d.
Total train-cost per train-mile	4s. 9d.	4s. 8d.	1d.
Total loco. cost per train-mile	3s. 8½d.	3s. 3d.	5½d.
Total cost per loco. mile	3s. 1½d.	3s. 0½d.	½d.

In his concluding remarks the author said that a definite prediction as to the extent which the diesel would replace the steam locomotive could not be supported by sound reasoning and would, therefore, be unwarranted.

New L.M.S.R. Control Office

Simple but efficient layout which may serve as a standard for future requirements

Controllers of sections at their desks immediately below the train boards at an L.M.S.R. Control Office

As a result of damage by enemy action, a provincial Control Office on the L.M.S.R. was put out of action and emergency arrangements, made before the war, had to be brought into use. The emergency accommodation, which was designed only for the continuation of essential work during air raids and in emergencies, was modified and the important work of the Control Office, with the co-operation of the staff, was not interrupted. Temporary accommodation for certain other personnel of the control staff was also provided in nearby premises.

The new Control Office, which has just come into operation, has been built on the ruins of the old one. Scarcity of labour and materials raised many problems, but by studying every detail with the object of keeping requirements to a minimum, the new office was brought into use in a very short time. The exigencies of the war have had a material effect on the design of the new office, for in studying the minimum requirements for efficient working, a simplicity of layout has been achieved which may well serve as a standard for future requirements.

The geographical train boards and other equipment, which were damaged beyond repair, have been re-drawn and the new boards mounted on one wall of the rectangular office. The Controllers of Sections "A," "B," and "C" respectively, are provided with desks immediately below the train boards. Five other controllers—Locomotives, Guards, Passengers, Assistant Controller (Train Cards), and Assistant Controller (Wartime post), have desks arranged in a semi-circle facing the train boards. Immediately to the rear of these desks is located that of the Head Controller, who is thus placed in the most advantageous position for securing a general survey of the operations of those in the office.

Each controller's position is fitted with a keyboard on which all telephone circuits are concentrated. The Control Office is selectively called from the out-stations on the various bus circuits; lamp signalling is employed on the keyboards. When any controller engages one of the control circuits either for originating a call or for answering an incoming call an engaged lamp signal, associated with the circuit concerned, is brought into operation on each of the keyboards.

Each keyboard is cabled independently to a distributing frame to facilitate maintenance. In designing the new Control Office, arrangements were made for the relay equipment installed in the emergency accommodation to be modified to serve both the normal and the emergency installations, thus making a duplicate relay rack unnecessary and enabling this vital equipment to be retained in protected accommodation.

The whole system is battery operated and is independent should the mains supply fail. In this event, arrangements have been made to charge secondary cell batteries from a standby generator set located in the emergency accommodation.

The general plan and layout of the Control Office, which at first was considered to be purely an emergency building, have been well proved in use, and it is probable that they will be taken as the basis for future constructions of this kind.

General view of the Control Office showing the positions occupied by Controllers. The Head Controller (not shown) has a seat to the rear of the occupants of the semi-circle of desks

RAILWAY NEWS SECTION

PERSONAL

Mr. T. Hornsby, formerly Divisional General Manager, North Eastern Area, L.N.E.R., and for the past three years Chief Coal Supplies Officer, Durham, has been appointed Regional Controller, Durham, for the Ministry of Fuel & Power.

Mr. J. A. Pannell, Chief Engineer of the City of Oxford Motor Services Limited, has been appointed Chief Engineer of the South Wales Transport Co. Ltd.

Mr. H. F. Mathews, of the South Wales Transport Co. Ltd., has been appointed Assistant General Manager & Chief Engineer of the City of Oxford Motor Services Limited.

At the request of the Chairman of Pickfords Limited, the Minister of Supply has agreed to release Mr. Harold Elliott, who has been Controller of Transportation (Road) at the Ministry since November, 1940. Mr. Elliott has now returned to the service of Pickfords Limited.

We regret to record the death on July 20, in a Croydon nursing home, of Mr. Alfred William Marshall, at the age of 77. Mr. Marshall was for some 30 years on the editorial staff of *The Model Engineer*, which was founded and is still edited by his brother, Mr. Percival Marshall.

Indian Railway Staff Changes

Khan Bahadur Mazaffar Hussain, C.I.E., Member of the Railway Board, was granted leave, preparatory to retirement, as from May 8, and was permitted to retire from Government service as from June 30.

Colonel H. W. Wagstaff, M.C., formerly R.E., has been appointed to officiate as Member of the Railway Board, as from May 8, in place of Khan Bahadur Mazaffar Hussain.

Mr. R. B. Seth has been confirmed as Deputy General Manager (Works & Secretary), B. & A.R.

Rai Bahadur A. Bholanath has been confirmed as Deputy General Manager (Personnel), B. & A.R.

The services of Mr. H. N. Parker, Officiating Chief Commercial Manager, B. & A.R., have been placed at the disposal of the Defence Department, as from March 4.

Mr. J. N. E. Nagle has been appointed to officiate as Chief Commercial Manager, B. & A.R., in place of Mr. Parker.

Mr. R. S. Vipan has been appointed to officiate as Deputy Chief Commercial Manager, B. & A.R., in place of Mr. Nagle.

Mr. P. L. J. Hands has been confirmed as Controller of Stores, B. & A.R.

Mr. B. W. Patterson has been appointed to officiate as Deputy Chief Transportation Manager, B. & A.R., as from March 27.

Khan Bahadur M. D. Sheik, Deputy General Manager (Personnel), N.W.R., has been appointed to officiate as Director, Railway Board.

Mr. Vincent L. Dean, V.D., General Secretary, Indian Railway Conference Association, whose death was recorded in our July 31 issue, received his early training with the former London & North Western Railway. In 1914 he was appointed by the Secretary of State for India to be an Assistant Traffic Superintendent of the Indian State Railways, and was posted to the North Western Railway. He officiated as District Traffic Superintendent in 1918, and was confirmed subsequently in that appointment. In 1933 he became Principal of the Walton Training School (North Western Railway), and held this position until he was appointed Resident Manager, Indian Railways Publicity Bureau, New York, in February, 1937. The latter office was closed by the Railway Board in June of the next year, in accordance with recommendations of the Wedgwood Committee that attention should be concentrated on publicity in India, rather than on tourist advertising abroad; and accordingly Mr. Dean returned to India. He was Divisional Transport Officer, Karachi Division, N.W.R., until May, 1939, and then went to Ferozepur as Divisional Superintendent there. Later that year he was appointed General Manager, Ceylon Government Railway, and was due to take up this position in January, 1940; but he decided afterwards that, due to the war situation, he should not deny his services to the Indian railways, and he accepted the important post of General Secretary, Indian Railway Conference Association, which included the duties of Director, Indian Railways Broad-Gauge Wagon Pool (covering 45,000 route-miles and the inter-railways distribution arrangements for 125,000 wagons). He took up his duties at the beginning of April, 1940, on the retirement of the previous General Secretary, Mr. B. Lawrence. Mr. Dean held the rank of Major in the Auxiliary Forces, India, and had been awarded the Volunteer (long service) Decoration.

The late Mr. Vincent L. Dean, V.D.

General Secretary, Indian Railway Conference Association, 1940-42

Institute of Transport

Among those elected recently to Associate Membership of the Institute of Transport are Mr. H. R. Lane, Works Manager, Southern Motor Services Limited, Portslade, and Mr. J. G. J. P. Seabrook, South African Railways & Harbours, Johannesburg.

Mr. J. S. Wills has been appointed a Director of the Yorkshire Electric Power Company. He is a Director of the British Electric Traction Co. Ltd., and is Chairman of East Yorkshire Motor Services Limited, the Yorkshire Traction Co. Ltd., and of other public-transport undertakings.

The King has recently awarded the Imperial Service Medal to 140 employees in the Department of Transport, Dominion of Canada.

At a recent meeting of the Goods Managers' and Mineral Managers' Conferences, a presentation was made to Mr. Alexander Maynard, who retired lately from the position of Chief Goods Manager, Great Western Railway. Mr. T. E. Argile, Chairman of the Goods Managers' Conference, presided; he was supported by Mr. Ashton Davies, C.V.O., O.B.E., Vice-President, London Midland & Scottish Railway. Tribute was paid to Mr. Maynard's valuable services to the G.W.R.

Sir Charles Craven has recovered from his recent illness, and has resumed his duties as Chairman & Managing Director of Vickers-Armstrongs Limited and English Steel Corporation Limited.

The Iron & Steel Control announces that Mr. Stephen Lloyd, Joint Director of Bolts, Nuts & Rivets, has taken over the sole directorship, as Mr. Richard Beesly has been released to return to Guest, Keen & Nettlefolds Limited.

Mr. John C. Mitchell, President of the London General Omnibus Company's Employees' Friendly Society, announces in the Society's Annual Report for 1941 that he is retiring from this office, and from that of Trustee, in order that someone who is still engaged actively with the L.P.T.B. may be appointed in his place. Mr. Mitchell has been with the Society for 28 years.

Air Raid Damage at York Station

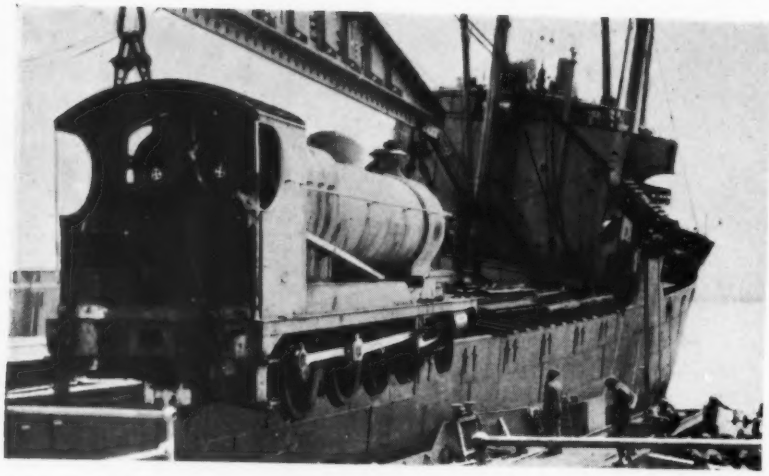
Platforms Nos. 1, 2, *and* 3, *at York Station, L.N.E.R., after the "Baedeker" air raid on April* 29 (*see article on page* 140)

The above illustration shows the same area as that at the top of the page, with the debris cleared and repairs effected. This state was reached in no more than three days after the raid; No. 3 *platform was in use the morning after the raid*

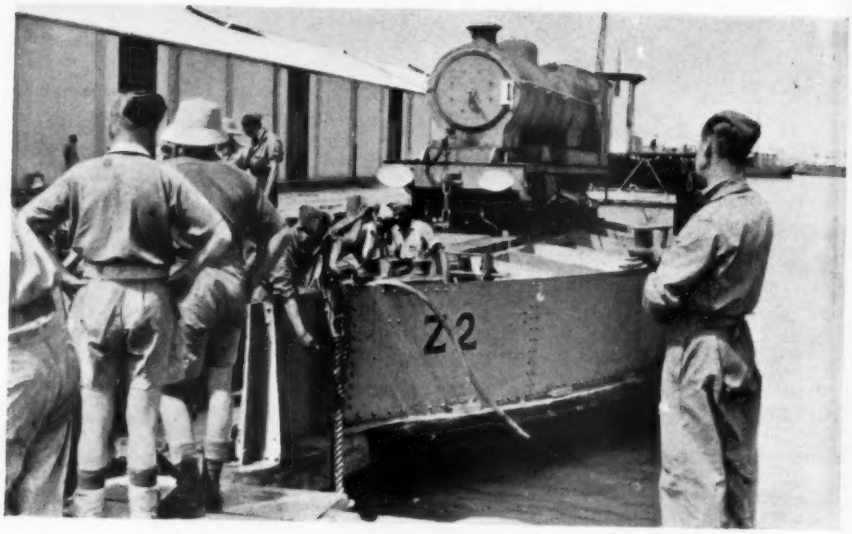
The above illustration was made from a photograph taken a few hours after the raid and shows some of the burned-out coaches of the 10.15 *p.m. express, Kings Cross to Edinburgh*

York engine shed demolished. The nameplate of the locomotive "Sir Ralph Wedgwood" withstood the "Blitz" and no doubt has been or will be transferred to another engine. The illustrations on this and the preceding page are from official L.N.E.R. photographs which have just been released for publication

Railways and the War—107



Above: Unloading a locomotive on to a lighter at a Syrian port. The list on the freighter will be noted



Right: A lighter arriving at the wharf with a locomotive from a freighter

New Zealand army engineers in Syria landing locomotives by lighters. The photographs from which these illustrations were made were taken on the first occasion that this work had been carried out successfully

TRANSPORT SERVICES AND THE WAR—151

Drastic Motorcoach Cuts

In the brief account which we published in our July 10 issue (page 41), of the drastic cuts in motorcoach services which became effective at the end of June, we recorded that the principal group of services affected was that between London and East Anglia, and that the withdrawals, including all the remaining services of the Eastern Counties Omnibus Co. Ltd. between London and East Anglian points, resulted in the entire suspension of regular motorcoach services by this company. At the outbreak of war the Eastern Counties Omnibus Co. Ltd. (an associate of the L.M.S.R. and the L.N.E.R.) maintained an extensive network of motorcoach services working from various points in East Anglia to the Metropolis, and also to a number of Midland destinations. Many of these were withdrawn within a few days of the outbreak of war, and two of the routes to London (services H and U) ceased to operate in April, 1940. This left only four routes (services A, E, F, and P) which continued to be maintained until June 30 of the present year. The full list is as follows :—

Service	Route	Date last operated
A	London—Ipswich—Felixstowe	30.6.42
B	Stradbroke—Yarmouth	12.9.39
C	London—Hunstanton	23.9.39
D	Cambridge—Felixstowe	9.9.39
E	London—Bury St. Edmunds—Norwich	30.6.42
F	London—Ipswich—Southwold ...	30.6.42
G	London—Newmarket—Norwich—Yarmouth	9.9.39
H	London—Saffron Walden—Norwich—Cromer	23.4.40
J	London—Ipswich—Norwich—Cromer	9.9.39
K	London—Newmarket—Norwich—Sheringham	23.9.39
L	Yarmouth—Norwich—Leicester ...	17.9.39
M	Peterborough—Hunstanton	10.9.39
N	Cambridge—Yarmouth	10.9.39
O	Birmingham—Cambridge—Yarmouth—Lowestoft	18.9.39
P	London—Chelmsford—Sudbury—Yarmouth	30.6.42
Q	London—Ipswich—Saxmundham—Yarmouth	9.9.39
R	London—Cambridge—Yarmouth ...	9.9.39
S	Lowestoft—Yarmouth—Newcastle ...	16.9.39
U	London—Cambridge—Bury St. Edmunds	23.4.40
V	Cambridge—Hunstanton	9.9.39
W	Ely—Yarmouth	9.9.39
X	Peterborough—Clacton...	9.9.39
Y	Cambridge—Southend	9.9.39

In part replacement of service E, the company's ordinary bus service from Norwich to Garboldisham was extended on July 4 to Bury St. Edmunds, *via* Barningham, to connect with trains to and from London. Through journeys from Norwich to Bury St. Edmunds are operated only on Wednesdays, Saturdays, and Sundays, and the vehicles which run through to the railway station comprise the early journey from Norwich and the late afternoon departure from Bury St. Edmunds.

Road Transport Licences and Permits

The Minister of War Transport has decided to simplify licensing procedure for buses and goods vehicles in order to save time, man-power, and paper in the Ministry's offices and in the offices of road transport operators. The changes of procedure are incorporated in an Order (Emergency Powers (Defence) Road Vehicles & Drivers Order, 1942) which came into force on July 31. The following are the principal changes :—

All licences and permits for buses, or for their drivers and conductors, and all carriers' licences and permits in force on July 31 which would otherwise expire during the coming year are renewed automatically for 12 months from their expiry date. These include the licences and permits which were renewed automatically last year. The licences and permits affected, which run into some hundreds of thousands, are those issued for :—

Drivers and conductors of public service vehicles ;
Drivers and conductors of trams, trolleybuses, and hackney carriages in the Metropolitan Police District ;
Public service vehicles ;
Road passenger services (except short term permits) ;
Goods carriers ("A," "B," and "C" carriers' licences or permits), except short-term permits.

No fees will be charged for licences or permits renewed automatically and fees for new permits (for which application must be made in the usual way) are abolished.

Holders of any licence or permit mentioned above must, however, notify the Regional Transport Commissioner of any change of address or change of vehicle specified. Drivers of goods vehicles are reminded that heavy goods vehicles drivers licences or permits are no longer required or issued. Ordinary driving licences and excise licences are not affected by the Order.

R.E.C. August Holiday poster

Speed Limits for Civil Defence Vehicles

The Ministry of Home Security has informed local authorities that, as high speed increases the rate of tyre wear, civil defence vehicles should not be driven above the following speeds (in areas where a speed limit does not apply) except when on urgent operational duty :—

Cars	40 m.p.h.
Motorcycles	40 m.p.h.
Load-carrying vehicles (up to 3 tons) ...	30 m.p.h.
Load-carrying vehicles (over 3 tons) ...	20 m.p.h.

The Fire Service Department of the Home Office has issued similar instructions to the National Fire Service.

August Bank Holiday Traffic in Ireland

In public announcements the Great Southern Railways issued a warning that no additional rail or road passenger services would be operated during the August Bank Holiday period, as the transport of essential food and fuel, and the provision of essential passenger services, must be given priority.

The Great Northern Railway (Ireland) also gave public notice that it would be impossible to run any extra trains during the holiday period from Dublin to Belfast or elsewhere across the border. The total seating capacity of the outward main-line trains from Dublin for stations in Northern Ireland *via* Goraghwood was limited to about 1,650 persons a day. On July 30 and 31, and August 1, no passengers travelling to Northern Ireland destinations *via* Goraghwood were allowed to travel on the 9 a.m., 1.50 p.m., and 6.15 p.m. trains from Dublin to Belfast unless they had previously obtained both control and rail tickets in advance. Passengers returning from Dublin with return tickets also had to obtain control tickets. These control tickets were obtainable in advance at the booking office at Amiens Street Station, Dublin, without extra charge. The issue of a control ticket was not a guarantee that

Springs! Springs!! Springs!!!

That is the daily song of our blacksmiths. On the springing of our buses depends the riding comfort of our passengers. Correct springing is one of the many details which has to be watched carefully by our maintenance staff. When travelling in a Yorkshire bus, give a thought to the efforts which are being made for your safety and comfort. We are sure you will appreciate them and we are pleased to serve you.

HEAD OFFICE: SAVILE TOWN, DEWSBURY

YORKSHIRE
WOOLLEN DISTRICT TRANSPORT Co. Ltd

WOMEN AT THE WHEEL

Driving a 'bus is just one of the many tough jobs which the women of Britain have been called upon to do. Their willing co-operation has released many men for the fighting forces, and been of vital assistance in maintaining essential transport services.

THE
WESTERN NATIONAL
OMNIBUS COMPANY LIMITED

Head Office: QUEEN STREET, EXETER
'Phone Exeter 4491/2/3.

Two recent advertisements inserted in the provincial press by railway-associated bus companies to foster goodwill and to record wartime activities

a seat would be provided, although every effort was made to provide seats, but only holders of rail and control tickets were admitted to the platforms. Advance booking was not necessary in connection with any other trains or for any services not operated *via* Goraghwood.

On Monday, August 3, goods stations and parcels offices in Eire were closed and regular lorry services were suspended.

German Producer-Gas Central Board

In order to accelerate the changeover of road motor vehicles from liquid to solid fuels, Göring has organised within the framework of the Four-Year Plan a Central Board for Producer-Gas Generators under the control of the German Minister for Armaments.

Wagon Loading in Germany

The German Minister of Transport has decreed that from June 30, 1942, all Reichsbahn goods wagons may be loaded up to 2 tons over their scheduled carrying capacity for inland traffic; all Belgian and French wagons used on Reichsbahn lines may be loaded to 1 ton over capacity. Until that date German wagons were allowed to carry 1 ton more, but Belgian and French wagons were not allowed to be overloaded.

Rolling Stock for Germany

Some few weeks ago it was reported that the Germans had demanded further rolling stock and road vehicles from the Vichy Government, and it has since been stated that, after at first demurring, Vichy ultimately agreed to hand over approximately 1,000 locomotives, 40,000 railway wagons, 35,000 lorries, and several thousands of miles of rail lifted from unimportant lines in France. It was also stated that these deliveries were substantially below the German demands and were accepted only provisionally.

On July 23 a Moscow report stated that the German State Railway authorities had been adopting a policy of uncoupling railway wagons arriving from Hungary, Italy, France, Denmark, and other occupied countries, and sending them for "repair" to the shops. Many of these are stated to have emerged, after repainting, with German lettering. Recently the Hungarian State Railway administration is said to have complained of the disappearance of both locomotives and wagons.

New Flat Wagons in Germany

The Reichsbahn has placed in service recently new types of flat wagons for heavy loads, with steel stanchions, end flaps for end-on loading, and raised supports movable lengthways and sideways. There are three types, all on bogies, and the principal dimensions are as follow :—

Type	SSY	SSYS	SSYMS
Bogies, number of wheels	4	4	6
Distance between wheels of bogie	1·8	1·8	1·5 + 1·5 m.
Distance between centres of bogies	6·15	6·15	7·2 m.
Floor, length	8·8	8·8	11·2 m.
Floor, extended, flaps down	9·5	9·5	11·9 m.
Floor, width	3·15	3·15	3·15 m.
Weight	15·3	16	22 metric tons
Load capacity	46	46	80 ,, ,,
Max. load allowed ...	48	48	83 ,, ,,

Danish Motorcoach Traffic

Motorbus and motorcoach traffic in Denmark was considerably reduced on April 1, as a measure of tyre economy. The overall decrease is 50 per cent., but, although the reductions apply to all routes, the individual importance of the various routes determines the volume of traffic permitted. In some cases, traffic has been suspended entirely so that traffic on more important routes may be maintained. The various counties co-operated with the owners of the local motorcoach routes and the local railways in working out details of the scheme. An investigation of the stocks of tyres and tubes for motorcoaches still in traffic in the autumn of 1941 revealed a shortage of the large sizes of tyres. In certain cases, however, it is possible to maintain traffic with tyres of the ordinary passenger-car sizes, and in such cases no restrictions on traffic are imposed. As tyres last much longer if vehicles are driven at decreased speed, the summer timetables are based on an average speed of not more than 24 km. (15 miles) an hour. All Sunday motorcoach traffic has been suspended.

New Producer-Gas Fuel

Flax waste, pressed into briquettes and burned in producer-gas units, provides a high grade of fuel for motor vehicles, according to reports from Denmark, where several successful trial trips are said to have been made with the fuel. The briquettes are processed from flax waste and waste from the manufacture of blood albumen, and are stated to give twice as much gas as equivalent weights of beech.

Railway Travel and Payment of Taxes

A novel linking of travel and tax payment, adopted under pressure of the German occupation authorities, has come to light at Uzice, a town in the Serbian part of Jugoslavia, on the Belgrade-Sarajevo railway. The Uzice magistrate, it is stated, issued a Decree early in June, according to which travel permits (which are compulsory for the local population)will be issued only if the applicant produces evidence that he or she has paid the taxes and rates due for 1941 and 1942.

New Railways in Turkey

Recent reports from Turkey indicate that construction work is being pushed forward energetically on the following three lines :—

(i) Diarbekr—Bismil—Cizre—Iraq frontier north of Mosul
(ii) Mamuret el Aziz—Mush—Van—Persian frontier at Qutur
(iii) Zongouldak—Eregli (Heraclea) on the Black Sea

The first line is in operation as far as Kurtalan, 100 miles from Diarbekr (see our issue of December 5, 1941, page 594). Isolated sections further on are ready, waiting to be joined to the completed part, and construction on the remaining sections is progressing. The second line is in operation as far as Palu, 44 miles from Mamuret el Aziz; earthworks are finished on the next section of 40 miles to Karpahur; surveys have been completed up to Mush, 60 miles further, and earthworks have been begun on this section; the surveys to Van, 150 miles from Mush, are well advanced and are expected to be completed well before the end of the present year. The third line, a short one, is being built through very difficult country where high mountains close to the coast have necessitated the construction of a series of tunnels and bridges; progress here is slow but steady.

Unified Time in East Africa

East African time was advanced at midnight on July 31, by 15 min. to conform to zone time which, in this case, is three hours fast on Greenwich Mean Time. The previous standard time, 2¾ hr. fast on G.M.T., was introduced in Kenya, Uganda, Tanganyika, and Zanzibar on January 1, 1937.

Civil Air Lines in the U.S.A.

The U.S.A. War Department announced on May 14 that, on the instructions of the President, the Army was taking over the operation or the control of all aircraft employed on internal air lines. The policy adopted was that all routes considered as unessential to the war programme would be discontinued. Air mail would continue to be carried over the remaining routes. At that time there were about 300 aircraft employed on internal air lines. On May 15 the Army requisitioned about half the total; approximately 75 have been converted into

The Bombay, Baroda & Central India Railway, in common with other Indian railways, has begun a campaign for the discouragement of passenger travel. We reproduce a photograph of a slide which has been designed by this railway for exhibition at cinemas

cargo carriers for operation by the air line companies on behalf of the Army on a non-profit making basis, and most of the remaining 75 requisitioned aircraft were transferred outright to the Army for operation by military personnel. Before the end of May the Civil Aeronautics Board had ordered the suspension of air transport services at 25 points, affecting 19 routes or portions of routes. Towards the end of June, as announced officially on June 26, the Army established a new organisation to provide air transport for its military operations throughout the world. Commercial air lines, including Pan American Airways, are being used wherever practicable, but the military transport system is operating elsewhere as necessitated by military considerations.

Reducing Excursion Travel in U.S.A.

For the duration of the war the Pennsylvania-Reading Seashore Lines of the U.S.A. have discontinued the popular day trips between Philadelphia and Atlantic City, and other resorts on the New Jersey coast, which previously operated on Sundays and public holidays during the spring, and daily throughout the summer from the beginning of May. The reason given is that less than half the normal pool of coaches is available for these trips, due to demands in other directions by war conditions. The last one-day seashore trip this year was run on Sunday, May 3.

Substituting Road for Rail Service

The United States Office of Defense Transportation has authorised the Northern Pacific Railroad to substitute road motor and lorry service for its passenger express and mail service over the 71-mile line between Logan, Montana, and Butte. The authorisation, which is the first of its kind, is contained in Supplementary Order No. 2-1, and is in effect a reversal, applicable to this route only, of General Order No. 2, effective from April 1, which prohibits the substitution of buses for train or tram services operating over existing rail routes. The application of the Northern Pacific has been granted on the ground that the railway company already owns the necessary buses and lorries, and that by the substitution two Pacific locomotives and a number of passenger coaches will be released to meet urgent needs elsewhere.

Canadian Travellers on Freight Trains

Many commercial travellers in Canada are solving their petrol rationing problem by riding on freight trains. By showing their credentials and obtaining signed releases, travellers are permitted to ride in freight train cabooses when there is no regular passenger train. The practice has been recognised for several years, but, since petrol rationing became effective, many more commercial travellers who previously motored are applying for passage by freight train in order to cover their territory.

Authority of the Transport Controller of the Canadian Department of Munitions & Supply, was extended in June by Order-in-Council. The Order gives the Controller wide powers to regulate railway travel by authorising him to "limit, discontinue, or cease to operate, or to extend, furnish, supply, or make use of, any railway facilities." He may fix prices for railway services and establish schedules of rates to be charged for the transport of goods or persons generally. Another section of the Order authorises the Controller to prohibit designated persons from using railway facilities or to require the use of the facilities by any specified persons. Any person authorised in writing by the Controller may "remove and retain" any books, records, or documents of the railways.

For transporting goods on Government business, the Controller is empowered "to charter, hire, lease, or borrow, any transport facilities or equipment under the authority of the Governor-in-Council or of the department for whose account any transport facilities or equipment is chartered, hired, leased or borrowed; to charter, hire, lease, borrow, or requisition, or take possession of, any space on any transport facilities or equipment; to rent, lease, hire, borrow, charter, requisition, or take possession of, any storage facilities, buildings or land; and to enter into contracts for loading or unloading or handling, checking, watching, supervising, or safeguarding any goods."

In his new duties, the Controller will co-operate with the Canadian representative of the British Ministry of War Transport and the Director of the United States Office of Defense Transportation.

Transport in Albania

As Albania has recently built or acquired a number of railway lines, and plans for further extensions and for road construction are growing, the Italian Government has set up a Ministry of Communications in New Territories. The area of the country has increased from 11,000 sq. miles to 16,400 sq. miles, and its population from 1 million to 1¾ million. The railways now in Albania, operated by a Division of the Italian State Railways, are as follow :—

(i) The Durazzo—Tirana—Elbasan standard gauge line, 83 km. (52 miles) long, constructed at a cost of 330 million lire (£6 million). On this single track line there are 6 tunnels, totalling 1⅞ miles.

(ii) The Priluzje—Kosovo Polje—Grlica section of the Kraljevo—Skoplje main line, 63 km. (39 miles) in length, and its branches from Kosovo Polje to Pristina, and from Kosovo Polje to Pec, 85 km. (53 miles), in the Kosovo province, seized from Jugoslavia; these are all standard gauge.

(iii) The narrow-gauge Skoplje—Struga and Ohrid line, 365 km. (227 miles). Two of its extremities, Skoplje and Ohrid, lie in Bulgarian-annexed territory.

Plans and surveys for the following lines are well advanced :—

(a) A standard-gauge line from Durazzo to Valona.

(b) Two standard-gauge branch lines of the Durazzo—Elbasan line, one from Tirana to Dibra, and the other from Elbasan to Struga.

(c) A standard-gauge line from Valona to Florina in Greece, an old plan for a fast connection between Rome and Athens and Istanbul *via* Brindisi and Valona.

Under the new ministry come also the roads in Albania. During the war of 1914-19, various military roads were built, of which about 300 miles were afterwards maintained by the Albanian Government. Free Albania added a further 170 miles of roads, with financial assistance from Italy. After the annexation by Italy, plans for 800 miles of trunk roads were approved, including the widening and strengthening of the existing road system. The plans provided for 26-ft. wide carriageways of asphalt on concrete, gradients of 1 in 16 maximum, and 100-ft. minimum radius of curves. The Durazzo-Tirana Via Littorea was completed at the outbreak of the war; a year later, in September, 1940, some 200 miles of trunk roads were ready, and 140 miles were under construction. These works included 9 large bridges completed, 20 under construction, 947 small bridges, and 649 existing bridges strengthened.

The present delimitation of the frontier between the enlarged Albania and Serbia has cut the Kraljevo-Skoplje main line into

Sketch map of the railways of Albania and neighbourhood showing hatched the area seized from Jugoslavia and Greece

three sections, namely, Serbian, Albanian, and Bulgarian. This line thus now crosses two frontiers, at Priluzje between Serbia and Albania, and at Kacanik between Albania and Bulgaria. The Serbian section of the main line is in operation only for a short distance at its southern end. Further north, towards Kraljevo, the Forces under General Mihailovitch are seeing to it that the line cannot be used by the enemy. At the southern end, 2 miles north of Kos. Mitrovica, which itself is 15 miles north of the new Serbian-Albanian frontier, is Zvecan station, the centre of lead and zinc mines which supply Italy and Germany. These minerals must now be carried to Germany by a roundabout way *via* Skoplje and Nish, passing over Serbian, Albanian, Bulgarian, and Serbian sections successively. Special rates for this route have been introduced, to Smederovo, whence further transport is by the River Danube.

Italian Holds on the Adriatic Coast

On the Jugoslav Adriatic, Italy has increased her own hold on parts of the coast of the newly-formed puppet States. Near Fiume the Italian-Croatian frontier now reaches the coast somewhat further south than shown in our map of February 20 (page 260), bringing the Skrljevo-Bakar branch line inside Italy. Further south, Italy already owned the town and district of Zara, west of Knin, which has no railway communication with the interior of Jugoslavia. The whole peninsula on which Zara stands has now been annexed, and this brings the Sibanik branch inside Italian territory, leaving the main line and Perkovic-Slivno junction to Croatia. Still further south, Italy has seized a coastal strip of Montenegro, including Zalenika (the terminus of the line from Sarajevo, *via* Mostar) and also Kotor (the terminus of the projected railway through Montenegro to Pec). This leaves to Montenegro the short coast line from Bar to the Albanian border. Bar is the terminus of the short 2 ft. 6 in. gauge railway to Virpazar.

The "Baedeker" Raid on York

(*See illustrations on pages* 134 *and* 135.)

The story of the part played by L.N.E.R. men during the "Baedeker" air raid on York in the early hours of April 29 last, and of the efforts made to restore services to normal, was told for the first time by Mr. C. M. Jenkin Jones, Divisional General Manager, North Eastern Area, in an interview on July 29.

"So far as York Station was concerned," he said, "the first bomb to cause damage fell shortly after the 10.15 p.m. express from King's Cross to Edinburgh had arrived, and the passengers had been warned by Assistant Stationmaster R. Lyon and Inspector C. J. Skelton to leave the train at once to take cover. Some of the passengers appeared to be more concerned about their luggage than their lives and did not alight when they were advised to do so! Then another bomb fell, this time near the Parcels Office, and simultaneously a large shower of incendiaries hit the station buildings, the roof, the track, and the 10.15 p.m. express. The buildings and the roof were ignited, and burning debris fell upon the express, which also caught fire. Our staff brought hoses into play at once, supplementing them with the smaller fire fighting appliances.

"With the aid of a soldier and shunters Wharton and Lee, the Assistant Stationmaster divided the 10.15 p.m. express and thereby saved 14 of the 20 coaches. Further rolling stock was saved by Signalman A. M. Simpson who, after his box had been damaged by blast, coupled up several burning parcels and other vans in No. 15 platform with the assistance of a driver and fireman, 'extinguished the flames, and had some 20 vehicles drawn clear of the station.''

A bomb hit also one of the engine sheds containing more than 20 locomotives, but fortunately only three of them sustained serious damage. The Leeman Road stables were set on fire by incendiaries, but stableman Alfred Martin, helped by Van Setter H. W. Craven and Police Constable A. S. Asquith, succeeded in rescuing all the horses, none of which was burned or injured.

Other L.N.E.R. men who distinguished themselves by their bravery and devotion to duty were station foreman W. Milner, a keen ambulance man who, although he could have taken refuge in a steel shelter when he was hurrying to obtain further first aid equipment, did not do so and lost his life—when his body was found, the box containing the ambulance equipment was underneath him; porter A. Hunter who, by his presence of mind, probably saved two other members of the staff from serious injury; blacksmith V. J. Hudson, who, despite a fractured leg, carried on his fire-fighting duties until he collapsed; and yard foreman A. E. Cade, who, during the worst period of the raid, extinguished singlehanded dozens of incendiaries and saved a number of burning wagons.

"As soon as the raid was over, our first thought was to get going with the restoration of services and facilities," said Mr. Jenkin Jones. "Thanks to smart work on the part of the Booking Office staff, the District Auditor, and a number of voluntary helpers, who, whilst the buildings were blazing, dragged out heavy desks, ticket racks, and other furniture across the road to the moat beneath the City Walls, we had established a temporary booking office in the tea room within a few hours of the raid. The money in the booking office tills, by the way, was saved by two of our fire-watchers, who carried it to safety in our hotel in a Wellington boot borrowed from the Passenger Agent, Mr. Green!

"The damaged No. 1 refreshment room was brought into use as a temporary parcels and left luggage office on the day of the raid, and the loud speaker installation was in operation on the next day. During the first week of May we had the booking office and two of the refreshment rooms in service again, and the tea room thus released became a temporary parcels office. The remarkable speed of the erection of temporary station buildings reflects great credit on Mr. Love, the L.N.E.R. Works Superintendent, and his staff.

"Valuable aid in clearing away the debris was given by the military, and the well-known rapidity with which British railway engineers repair air raid damage was amply demonstrated at York," concluded Mr. Jenkin Jones. "Some damage to running lines was inevitable, but I am proud to say that our Engineer's Department had all affected running lines available for traffic by the early evening of April 30, and actually most of them were in use on the evening after the raid."

Questions in Parliament

Below are summarised Answers to Questions in Parliament affecting transport. The Minister concerned and the date of the Answer are given in parentheses

One-Way Streets

Arrangements have been made to review existing one-way streets and roundabouts to determine which of them may with advantage be abolished. (Mr. P. J. Noel-Baker, July 22).

Road Accidents

On no occasion during the year ended December 31, 1941, did I exercise my power under Section 23 (3) of the Road Traffic Act, 1930, to hold an inquiry where an accident had arisen out of the presence of a motor vehicle on a road. Investigations have, however, been made in a number of cases where a defect in a vehicle or the condition of a road was alleged to be a contributory cause of an accident. (Mr. P. J. Noel-Baker, July 22).

Public Relations and Press Officers

The number of men employed in the Ministry of Supply as Public Relations or Press Officers, who are below the age of 35 years, is two, one of whom was discharged from the Army on medical grounds in 1940. (Sir Andrew Duncan, Minister of Supply, July 22).

Road Traffic Acts

I do not propose to take any action to bring before magistrates their responsibility for enforcing the Road Traffic Acts with the utmost rigour of the law. For securing greater safety and reducing the number of road accidents importance necessarily attaches to the manner in which courts of summary jurisdiction exercise the extensive powers conferred on them for dealing with offenders against the Road Traffic Acts, but I know of no grounds for the suggestion that magistrates generally are failing to exercise these powers with a proper sense of their public responsibilities. (Mr. Herbert Morrison, Home Secretary, July 23).

New Motor Cars

During the six months ended June 30, 1942, 1,292 licences were issued to persons or firms engaged in work of national importance to acquire 1,620 unregistered motor cars. Included in these numbers are those sanctioned for use by the Police and Government Departments. During the same period, 543 applications were refused. Arrangements have been made to terminate the manufacture of motor cars in the near future. So long as they are available, they will be accorded to those who can show that they have the greatest need for a new car. (Mr. P. J. Noel-Baker, Joint Parliamentary Secretary, Ministry of War Transport, July 23).

Gas Producer Plants

Supplies of solid fuel will be available for vehicles driven by gas-producer plant in so far as I and the Minister of War Transport are satisfied of the essential nature of the work on which such vehicles are engaged and within limits of number to be agreed between us. (Major G. Lloyd George, Minister of Fuel & Power, July 28).

Thames Pleasure Steamers

The supplies of coal contracted for by Thames pleasure steamers are about 70 tons a week over the summer months. In view of the small tonnage involved, I do not propose to interfere with something which gives recreation to large numbers of people. (Major G. Lloyd George, July 28).

Canal and Road Schemes

I do not think it would be practicable in present conditions to undertake a survey of a scheme of such magnitude as the construction of a sea-level canal capable of taking large ships from the Firth of Clyde to the Firth of Tay, but the project has been noted, together with others. (Mr. P. J. Noel-Baker, July 28).

I am prepared to consider proposals submitted by the appropriate authorities for the construction of road bridges close to the existing railway bridges over the Firths of Forth and Tay. (Mr. P. J. Noel-Baker, July 28).

Tyre Rationing Scheme

The Scottish Motor Trades Association was consulted when the tyre rationing scheme was in preparation. Tyre manufacturers' depots do not normally engage in retail distribution and I have no reason to suppose that the course suggested would lead to the more efficient working of the scheme or would be welcomed by manufacturers or tyre distributors as a whole. The list of authorised depots is kept under review and revised from time to time in the light of experience. (Mr. C. U. Peat, Parliamentary Secretary, Ministry of Supply, July 28).

Speed Limit

I will not suspend the 30 m.p.h. limit in built-up areas for all except heavy vehicles. Apart from considerations of safety on the roads, restriction of driving speeds is more than ever necessary to economise in the wear and tear of tyres and in the consumption of fuel. (Mr. P. J. Noel-Baker, July 28).

Welsh Road Schemes

The trunk route for the Neath River Bridge Scheme has been safeguarded, and a report on the general constructional principles of the scheme has been prepared by consulting engineers. The Jersey Marine improvement and the spur road leading to Jersey Marine and to Swansea are not trunk routes, but I shall be glad to consider any representations that the high-

way authorities concerned may desire to put forward. (Mr. P. J. Noel-Baker, July 28).

Ministry of Fuel & Power

Six persons are engaged either wholly, or partly in conjunction with other work at headquarters, on the administrative preparations for the action which will be necessary if rationing is introduced. The cost is at the rate of approximately £3,000 per annum. Temporary staff has been engaged locally to deal with the household fuel assessment forms. The immediate purpose of that work, however, is not rationing but the provision, for the purposes of distribution of solid fuel, of estimates of the requirements of consumers and their merchants. (Major G. Lloyd George, Minister of Fuel & Power, July 29.)

Traffic Lights

It is estimated that if all traffic lights were extinguished from 11 p.m. until dawn, there would be a saving of something like 2,500,000 units a year. Against this would have to be set the danger to traffic that would result, unless some other form of control were introduced, and the loss of man-power that would be involved. I understand that in a few towns all traffic lights are switched off during the blackout hours and that in many others some signals have been shut off altogether, and others work only over a reduced number of hours. Local authorities have been asked recently to consider what further economies it is desirable that they should make. (Mr. P. J. Noel-Baker, July 29.)

Earnings of Transport Undertakings

While the railways are under Government control, all the normal clearances between the different companies are suspended, and the gross earnings of the four group railway companies and the London Passenger Transport Board are pooled. In consequence, separate figures for each undertaking are not available. (Mr. P. J. Noel-Baker, July 29.)

Holiday Passenger Trains

The Ministry of War Transport has received reports from various parts of the country that more people are hoping to travel at August Bank Holiday weekend than the railways will be able to carry. I desire, therefore, to make it plain that the Minister of War Transport has told the railway companies that during the Bank Holiday period from July 31 to August 4 inclusive, they must not run more passenger trains on any given weekday than the maximum number run on any weekday in July of this year. On Sunday, August 2, they may run no more passenger trains than the maximum run on an ordinary Sunday in July. In the case of long-distance trains which are normally run in parts, each part will count as a train. Arrangements have been made with the Service Departments by which leave has been so adjusted that only a very small number of troops will travel on leave during the Bank Holiday period. The staff of Government Departments have been told that they are expected not to make long-distance journeys except when that is necessary on official business, and the use of their free or reduced-price travel passes will not be allowed. The general public should realise that the total number of trains available will be substantially less than it was in the corresponding period last year. I am grateful for this opportunity of making it plain to those who are intending to travel, and particularly to those who may be planning to make long-distance journeys, that if they disregard this warning, they will run the risk of finding themselves stranded. (Mr. P. J. Noel-Baker, July 30).

L.M.S.R. Interim Dividend

At a meeting of the board of the London Midland & Scottish Railway Company on July 30 it was decided to make interim dividend payments for the past half-year on the 4 per cent. guaranteed stock the 4 per cent. preference stock, and the 4 per cent. preference (1923) stock at £2 per cent. actual, less income tax at 10s. in the £. The warrants for these dividends will be posted on August 25. Of the company's income available for ordinary dividend, a considerable portion is derived from items outside the annual sum receivable under the agreement with the Government, and in these circumstances the directors have decided to await the full year's accounts before dealing with the dividend upon the ordinary stock. The income from the extraneous sources referred to has been maintained for the past half-year.

The interim dividend announcements of the Great Western, London & North Eastern, and Southern Railway Companies, and of the London Passenger Transport Board were published in our last week's issue.

Naming of S.R. "Merchant Navy" Locomotives

Two more mixed-traffic locomotives of the Southern Railway "Merchant Navy" class were named at Victoria Station on July 30. These were *Shaw Savill*, representing the long connection with the Shaw Savill & Albion Co. Ltd., and *Aberdeen & Commonwealth*. The naming ceremony was performed by Lord Essendon, who was introduced by the Deputy Chairman of the Southern Railway Company, Colonel Eric Gore-Browne, D.S.O. Colonel Gore-Browne observed that on this occasion there were two new locomotives of the class, and the fact that they had been designed and built during the war was thought a great achievement. It was a pleasure for him to welcome once again Lord Essendon, who had already named one of the earlier locomotives *Royal Mail*. He explained how locomotives of this class had been built at Eastleigh Works, originally to handle the overseas passenger traffic of Southampton. They were engaged now in hauling heavy trains of war freight and were being built for what he liked to consider as front-line service.

Lord Essendon said nearly a year ago he had named the third of the series, *Royal Mail*. The proceedings, however, were rather different on that occasion, when he had had the privilege of piloting the engine to Richmond; he had no doubt that this time they were saving fuel. The other occasion also cemented the hundred-years connection of the Royal Mail Lines with the port of Southampton. The Shaw Savill Line had a history which went back some 84 years, and the Aberdeen & Commonwealth Line was formed by a fusion of the Aberdeen White Star Line, founded in 1825, with the Commonwealth Government's "Bay" steamers, which included the *Jervis Bay*. The shipping companies trading to Southampton were indebted to the Southern Railway for its enterprise.

Among those present at the ceremony were:—

The Rt. Hon. Lord Essendon (Chairman, Aberdeen & Commonwealth Lines and Shaw Savill & Albion Co. Ltd.), Messrs. John Macmillan (Managing Director, Aberdeen & Commonwealth Lines and Shaw Savill & Albion Co. Ltd.), W. E. Keville (Director, Shaw Savill Line), T. F. Tallents (Director, Aberdeen & Commonwealth Line), S. J. Forster (Director, Shaw Savill Line), W. H. Savill (Director, Shaw Savill Line), W. E. Humphreys (Publicity Manager, Shaw Savill Line), Colonel Eric Gore-Browne (Deputy Chairman, Southern Railway Company), Messrs. E. J. Missenden (General Manager, S.R.), J. Elliot (Deputy General Manager, S.R.), R. M. T. Richards (Traffic Manager, S.R.), H. E. O. Wheeler (Deputy Traffic Manager, S.R.), G. Ellson (Chief Engineer, S.R.), O. V. Bulleid (Chief Mechanical Engineer, S.R.), H. A. Short (Docks & Marine Manager, S.R.), A. Cobb (Locomotive Running Superintendent, S.R.), W. J. England (Superintendent of Operation, S.R.), C. Grasemann (Public Relations & Advertising Officer, S.R.), A. Endicott (Surveyor & Estate Agent, S.R.), R. H. Hacker (Continental Superintendent, S.R.), F. Munns (Works Superintendent, Eastleigh, S.R.), W. J. Shorter (Assistant to Public Relations & Advertising Officer S.R.).

Left to right: Mr. E. J. Missenden, Colonel E. Gore-Browne, Lord Essendon, and Mr. O. V. Bulleid at the naming ceremony

NOTES AND NEWS

Thomas Tilling Limited.—Interim dividend is 5 per cent. (same).

Bristol Tramways & Carriage Co. Ltd.—A 5 per cent. interim ordinary dividend has been declared in respect of the year ending December 31, 1942 (same).

Belfast & County Down Railway Company.—The directors announce that profits are sufficient to meet the interest on the 4½ per cent. " A " preference stock for the half-year ended June 30, 1942.

Street Transport in Mexico City.—Mexico City is well served by tram and bus routes. The fare of the former between the main points in the city is 0.10 peso ; and on the latter, fares range from 0.10 to 0.15 peso, Mexican currency.

The Swiss Fleet.—For some time Swiss firms have operated steamships under Swiss flag between Genoa and Lisbon. On July 3 another vessel was added to the Swiss fleet by the purchase of the ss. *Lugano* from the French at Dakar.

Waiting List for the Channel Islands.—Jersey and Guernsey Airways have announced that, in response to many applications, they have opened a waiting list for those desirous of returning to the Channel Islands by air as soon as the islands are freed of enemy occupation.

French Railways Company of the Province of Santa Fe.—The River Plate Trust, Loan & Agency Co. Ltd. has received the necessary funds to pay the half-yearly coupon due July 1, 1942, on the 3 per cent. mortgage obligations of the Compagnie Francaise des Chemins de Fer de la Province de Santa Fe. Coupons must be left at least three clear days for examination.

Road Accidents in June, 1942.—The return issued by the Minister of War Transport of the number of persons reported to have died, or to have been injured, as a result of road accidents in Great Britain during the month of June last, shows 437 deaths (compared with 618 in June, 1941), 2,688 seriously injured (compared with 3,592 in June, 1941), and 8,408 slightly injured (compared with 11,593 in June 1941).

Argentine Railways.—A Reuters message from Buenos Aires states that reports published abroad, that the Argentine Government intended to purchase private foreign-owned railways of that country, were denied by the Ministry of Public Works on July 25. The denial was to the effect that the Government had not taken up the question and that there was nothing to lead to the supposition that it would do so.

Great Southern Railways (Eire).—For the 29th week of 1942 the Great Southern Railways (Eire) report passenger receipts of £44,624 (against £9,398), and goods receipts of £59,069 (against £48,678,) making a total of £103,693 (against £98,076), for the corresponding period of the previous year. The aggregate receipts to date are passenger, £1,000,696 (against £1,114,194), goods, £1,721,942 (against £1,490,278), making a total of £2,722,638 (against £2,555,074).

Argentine Railways Fuel Shortage.—It is reported from Buenos Aires that serious difficulties of the Argentine railways, which are receiving insufficient fuel, have been reported to the Government Railway Board by the companies. They suggest that the fuel shortage should be remedied by reducing the number of trains and their speed, increasing the number of cars for each train, and exempting the companies of all responsibility when goods are not delivered for a time.

New Air Line Across South America.—Pan American Airways Inc. recently inaugurated a new air line across South America from Rio de Janeiro to Lima, Peru, on the Pacific coast. The new passenger service connects the Brazilian capital with San Paulo and Corumba in Brazil ; Puerto Suarez, Santa Cruz, Cocabamba, and Oruro in Bolivia ; and Arequipa and Lima in Peru. It enables travellers to proceed from Rio de Janeiro to the northern Pacific coast of South America without the necessity of first going to Buenos Aires and then on to Chile.

Midland Bank Limited.—An interim dividend for the half-year ended June 30 last at the rate of 8 per cent. actual was paid on July 15. The same rate of dividend was paid a year ago.

Canadian National Railways.—Gross earnings during June last were $31,789,000, an increase of $6,146,648 over June, 1941, and operating expenses were $22,343,079, an advance of $3,529,170, leaving net earnings $2,617,478 higher, at $9,445,921. Aggregate gross earnings for the six months from January 1, 1942, were $169,415,000, an increase of $27,699,512, as compared with the similar period of 1941, and the net earnings of $39,518,871 showed an improvement of $7,410,659.

South Manchuria Railway.—The South Manchuria Railway returned a net profit of 72,000,000 yuan for the financial year ended March 31, 1942, as compared with 76,600,000 yuan for the preceding financial year. A dividend of 8 per cent. was paid. Income from railway operation totalled 160,000,000 yuan ; from ports and harbours, 1,000,000 yuan ; from mining activities, 14,000,000 yuan ; and from oil production, 2,500,000 yuan. There was a loss in connection with the company's road services of 1,100,000 yuan. Administrative expenditure totalled 31,000,000 yuan, and interest service absorbed 64,000,000 yuan.

East Gotland Central Railway, Sweden.—This company returned for 1941 a net profit of Kr. 63,695, compared with Kr. 42,824 for 1940. An allocation of Kr. 213,641 was made to the renewal fund, against the allocation of Kr. 206,683 the year before. The 1941 profit comprises taxes refunded and interest earned, amounting to Kr. 65,029 : as the profit and loss account for the past year had closed with a loss of Kr. 55,865, a sum of only Kr. 7,830 remained at the board's disposal, and, of this amount, Kr. 1,000 was allocated to the reserve fund ; the balance of Kr. 6,830 was carried forward.

Manchester Corporation Bus Fleet.—The bus fleet of the Manchester Corporation Transport Department totals 974, of which 201 are fully depreciated on an eight-year life. By reason of wartime bus service curtailments, only 778 vehicles are in daily use ; the average daily mileage is 85. Surplus buses have been loaned to other operators at various times, including Coventry Corporation Transport, Crosville Motor Services Limited, the Lancashire United Transport & Power Co. Ltd., the Liverpool Corporation Passenger Transport, London Passenger Transport Board, and Venture Limited.

Street Transport in Barcelona.—The facilities and services of the tram and bus systems of Barcelona have been greatly improved during the past three years. At the termination of the Spanish civil war in 1939, it was reported that Barcelona had 23 tramcars and 4 large buses. It now has 350 tramcars and 54 large buses, including 10 buses with producer-gas generators. In 1941, a total of 18 km. (11 miles) of new rails, made locally, and 20 km. (12½ miles) of new track was laid, and 40 km. (25 miles) of new copper trolley wire was installed. On a suburban route, 40 trolleybuses were placed in operation, and more are under construction. The tramcars and buses operated 30,000,000 km. in 1941, compared with 21,000,000 in 1939.

Gloucester Railway Carriage & Wagon Co. Ltd.—Net profit for the year ended March 31, 1942, after providing for

Mr. R. M. T. Richards (centre) Traffic Manager, Southern Railway, with Porter C. W. Smith (left), and Porter A. S. Waltham, of South Merton Station, the staff of which recently raised £1,130 in a War Savings Week

South Merton is the first station on the Southern Railway to conduct its own Savings week and in recognition of their special efforts, the Traffic Manager, at the request of the General Manager, presented a silver watch to the Group Secretary, Porter Waltham, and an initialled silver propelling pencil to Porter Smith who ably assisted him

directors' fees, wagon rent, debenture interest, depreciation, etc., was £120,661 (£64,229). After providing £85,000 (£35,000) for taxation the disposable profit is £35,661 (£29,229) to which must be added £14,393 brought in. Reserve again gets £10,000, and £5,000 (nil) is allocated to staff superannuation fund. The dividend for the year is maintained at 7½ per cent., and £15,367 is to be carried forward.

Canadian Air Lines.—Continued public ownership of transcontinental air services in Canada was urged by the Railways & Shipping Committee of the Canadian House of Commons in its final report, tabled in June. The committee expressed approval of the extension of Trans-Canada Air Lines to Newfoundland and a proposed extension to Alaska. The report added: "In this regard, however, some concern is felt, in that a competing company at present in control of extensive branch lines from coast to coast may seek the right to operate a Trans-Canada service. With any such suggestion the committee is in disagreement."

Bengal & North Western Railway Co. Ltd.—Gross earnings for the half-year to March 31, 1942, were Rs. 2,27,92,000 (Rs. 2,11,85,335), expenses were Rs. 89,58,000 (Rs. 92,10,415), and net earnings Rs. 1,38,34,000 (Rs. 1,19,74,920). Company's share of net earnings, after Indian tax and charges, realised £439,575 (£393,327). After providing for U.K. taxes, interest, and dividends on debenture and preference stocks, and allocating £35,000 to sinking fund there remains £240,613, including £44,061 brought in. Interim dividend on the ordinary stock is 6 per cent. and bonus 4 per cent., both less tax at 5s. 3d., leaving £19,373 to be carried forward. On the preference stocks a final dividend for the 7 months ending December 31, 1942, will be paid on December 31. It is the intention of the board to declare a further interim dividend for the 9 months to December 31, 1942, before the company goes into liquidation. This will be the last income dividend.

Powell Duffryn Associated Collieries Limited.—In the statement issued with the directors' report and accounts, the Chairman, Mr. E. L. Hann, mentioned that the new plant for the production in substantial quantities of "Phurnacite," a carbonised fuel for use in producer gas plants, heat storage cookers, and central heating stoves, was now operating, and he was satisfied that the plant would produce a fuel of the highest grade. The company and its officials were doing their utmost to bring about the increase in coal production which was so vitally necessary in the national interests. With regard to the Government White Paper scheme, which had been so hurriedly conceived, he was convinced that, if in the national interests, changes in the conduct of the trade were vital to the war effort, all that was necessary could have been accomplished by simpler methods and by more co-operation between the Government and the industry. This company would, however, do everything in its power to assist the Ministry of Fuel & Power to administer the scheme.

Southern Railway Extension of Time Application.—The Southern Railway Company is applying to the Ministry of War Transport for an Order under the Special Enactments (Extension of Time) Act, 1940, extending by three years from October 1, 1942, the time now limited—(1) by Section 41 of the Southern Railway Act, 1939, for the acquisition of:—(*a*) lands required for certain works authorised by that Act, including alterations of levels and gradients authorised by the Act of 1930, and the Railway No. 1 authorised by the Act of 1935 in Surbiton and Leatherhead, and subways and enlargements and diversion of tunnels (Waterloo & City Railway); (*b*) lands at Folkestone. (2) By Section 56 of the Act of 1939 for the acquisition of lands at Richmond, at Bermondsey for bridge widening, and at Boldre.

Anglo-Scottish Railways Assessment Authority.—The amounts of the average net receipts for the five accounting years 1935 to 1939 proposed to be fixed by the Anglo-Scottish Railways Assessment Authority are £12,563,755 for the London Midland & Scottish Railway and £8,110,222 for the London & North Eastern Railway. In the case of the L.M.S.R. the amount proposed to be apportioned to England is £11,564,679 and to Scotland £999,076. The proposed apportionment for the L.N.E.R. is £7,690,895 to England and £419,327 to Scotland.

Peter Brotherhood Limited.—Mr. A.M. Neal, presiding at the 35th ordinary general meeting of this company, said that the net profit for the year to March 31 last, before providing for income tax and E.P.T., was £160,386, against £161,969 the previous year, but taxation had reduced the amount of net profit available for distribution and other purposes to £60,387, against £61,969 last year. Whereas the turnover had been more than maintained, the trading profit was slightly lower than in the case of last year. This was due partly to an increase in cost of production consequent upon abnormal conditions, but chiefly to the diminishing margin of profit allowed to the company in its contract prices. The board had unanimously decided to recommend a final dividend of 12 per cent. on the ordinary shares, making 20 per cent. for the year.

Rhodesia Railways Limited.—Gross revenue during the year ended September 30, 1941, was £5,730,678, an increase of £760,580 in comparison with 1939-40. Working expenditure (including provision for depreciation and renewals) was £155,504 higher, at £3,204,781, and the surplus over working expenditure amounted to £2,525,897, an increase of £605,076. The operating ratio improved from 61·3 per cent. to 55·9 per cent. After providing for all charges, including debenture stock service, the profit for the year under review was £854,571, compared with £679,101 in the previous year. Out of this profit, £125,000 has been appropriated to dividend account and £729,571 to rates stabilisation account. A dividend of £125,000 (25 per cent.), less tax, was paid on April 22, 1942, in respect of the year ended September 30, 1940, and the directors recommend a similar payment in respect of the year under review.

Pullman Incorporated.—An order of the War Production Board issued on April 4 restricted the further production of cars and locomotives to certain lots, constituting something less than half the units on order. Regarding the Government's anti-trust suit against the Pullman group of companies, it is stated that the President of the United States has appointed a board of Cabinet members to adjudicate upon requests that might be made for deferment of suits under the anti-trust laws against concerns engaged in war work. The directors of theese companies have, however decided not to ask for such "duration deferment" in this suit against the Pullman group but rather to proceed with the trial while the evidence that has already been introduced is fresh in the minds of the hearing judges and while the railroad and Pullman officers who are conversant with the facts in the case and whose testimony has not yet been given are still present and able to testify.

Greenwood & Batley Limited.—Profits for the year to March 31 last were £103,034 (£112,783), out of which £43,748 (£38,500) has been set aside for depreciation. Provision of £38,790 is made for income tax. For the previous year patents and securities were written down by £15,000. The final ordinary dividend of 10 per cent. makes 15 per cent. for the year (same), and £32,453 is carried forward.

British and Irish Railway Stocks and Shares

Stocks	Highest 1941	Lowest 1941	Prices July 31, 1942	Rise/ Fall
G.W.R.				
Cons. Ord.	43¾	30¾	45¼	– 1
5% Con. Pref. ...	109¼	83¼	107	– 1
5% Red. Pref. (1950)	105¼	96¼	105	—
4% Deb.	113¼	102½	108	—
4½% Deb.	115	105⅝	108½	—
4½% Deb.	121½	112	114½	—
5% Deb.	132	122	127½	—
2½% Deb.	70	62⅜	72½	—
5% Rt. Charge ...	129½	116	125½	—
5% Cons. Guar. ...	128	110½	124⅝	– 1
L.M.S.R.				
Ord.	17½	11	20	– ½
4% Pref. (1923) ...	53	33¼	55½	– ½
4% Pref.	68½	48¼	71½	—
5% Red. Pref. (1955)	97⅞	77	99⅜	—
4% Deb.	105¾	97	104	—
5% Red. Deb. (1952)	110½	106½	109	– ½
4% Guar.	100	85¾	100½	—
L.N.E.R.				
5% Pref. Ord. ...	3¾	2¾	4	—
Def. Ord.	2	1½	2	—
4% First Pref. ...	52½	33	55	—
4% Second Pref. ...	19⅜	10	23	—
5% Red. Pref. (1955)	79½	52	87½	– 1½
4% First Guar. ...	90½	74½	93	– 1
4% Second Guar. ...	80½	59	82½	– 1
3% Deb.	79¾	68¾	79	—
4% Deb.	104	91⅛	103½	—
5% Red. Deb. (1947)	106	102½	105	+ ½
4½% Sinking Fund Red. Deb.	103½	99⅞	103½	— ½
SOUTHERN				
Pref. Ord.	65½	43¼	65	– 2
Def. Ord.	15⅞	9	16½	– ½
5% Pref.	107	77½	106§	– 1
5% Red. Pref. (1964)	107	89½	107½	– 1
5% Guar. Pref. ...	128	111	125	– 1
5% Red. Guar. Pref. (1957)	114¾	107½	111⅛	—
4% Deb.	112	102½	107	—
5% Deb.	130⅛	119	127½	—
4% Red. Deb. (1962–67)	108¾	102	108½	—
4% Red. Deb. (1970–80)	108¾	102½	107½	—
FORTH BRIDGE				
4% Deb.	99½	90½	105	—
4% Guar.	99	85¼	103½	— ½
L.P.T.B.				
4½% "A"	120⅞	109½	112½	—
5% "A"	130⅛	115½	123½	—
4½% "T.F.A." ...	103½	99½	100	—
5% "B"	117	102	114½	—
"C"	46¾	28¾	45§	+ 1½
MERSEY				
Ord.	24¾	19¼	22	—
4% Perp. Deb. ...	100	90	99	—
3% Perp. Deb. ...	73½	63	77	—
3% Perp. Pref. ...	58	51½	59	—
IRELAND				
BELFAST & C.D.				
Ord.	4	4	9	—
G. NORTHERN				
Ord.	14½	3	20½	+ ½
G. SOUTHERN				
Ord.	14½	5	12½	—
Pref.	17	10	19½	+ 1½
Guar.	44	16	42	+ 3
Deb.	61	42	62	—

§ ex dividend

Railway Stock Market

Inactive conditions have continued to rule in Stock Exchange markets, and with few exceptions, movements in security values were small and unimportant. Absence of selling, indicating continued confidence in the future, again tended to assist sentiment. The firmness with which all classes of securities are held is due in part to the difficulty of obtaining alternative investments on attractive terms; shortage of good class stock in the market has again been an important factor. Home railway debentures and prior charge stocks remained firm and were well maintained in price; it was realised that the yields, although moderate, compare favourably with those obtainable on other leading investment securities. Further consideration of the interim dividend decisions had virtually no influence on the junior stocks; they were fractionally lower on balance, but this probably reflects the inactive and slightly reactionary market conditions in evidence at the time of writing. All the interim dividend decisions were in accordance with best expectations, with the exception of that of the L.M.S.R. the last of the announcements to be made. As was the case last year, the L.M.S.R. is not paying an interim; the directors indicate that this cautious policy arises from the fact that a considerable portion of the company's income available for dividend on the ordinary stock is derived from items outside the sum received under the rental agreement with the Government. It is added, however, that income from these items has been maintained in the past half-year. There is, of course, every reason to assume that the payment for the year will again be 2 per cent., and that dividends on the other junior stocks of the main-line railways will also be maintained. The only development which could prevent the maintenance of dividend payments is, apparently, exceptionally heavy air-raid damage. Bearing in mind that there is no other group of undertakings whose dividend outlook during the period of the war is as clearly defined as that of the railways, it is certainly anomalous that home railway junior stocks continue to be valued on a higher yield basis than any other group of widely-held securities. The explanation often given for this is the uncertainty that surrounds the problems and developments that will have to be faced in the post-war period. Nevertheless, these factors may not be any more complicated than those that may have to be solved by many other important industries whose shares at the moment are valued in the market on a 5 per cent., or even lower, yield basis. Yields of as much as 10½ per cent. are shown on both L.N.E.R second preference and Southern deferred at current prices, and that on L.M.S.R. ordinary is 10 per cent. and that on Great Western ordinary nearly 9 per cent. The yield on London Transport "C" is 6½ per cent., or well below the yields on the "marginal" stocks of the main line railways.

Compared with a week ago, Great Western ordinary at 45 has lost half-a-point; the guaranteed stock was maintained at 124, as were the 4 per cent. debentures at 108, and the preference stock was fractionally higher at 107. L.M.S.R. ordinary reacted from 20¼ to 20, but still shows a smaller yield than either Southern deferred or L.N.E.R. second preference. L.M.S.R. 1923 preference moved back slightly to 55½; the senior preference was maintained at 71½, as was the guaranteed stock at 100½, but the 4 per cent. debentures eased to 103½. L.N.E.R. second preference was little changed at 22½, but on balance the first preference reacted a point to 53; the first guaranteed was maintained at 93, the second guaranteed at 82½, the 4 per cent. debentures at 103½, and the 3 per cent. debentures at 79. After a rally to 65½, the Southern preferred moved back to 65¼, and the deferred was 16⅝, compared with 16⅞ a week ago. Southern preference and guaranteed stocks have been maintained at 106 and 124 respectively. After their recent reaction, London Transport "C" showed a partial recovery to 45, which compares with 44½ a week ago. There were again few movements among foreign railway issues; fractional declines were shown in B.A. Gt. Southern and B.A. & Pacific debentures. A slightly lower price also ruled for C.P.R. debentures.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open 1941–42	Week Ending	Traffic for Week: Total this year	Traffic for Week: Inc. or Dec. compared with 1941	No. of Weeks	Aggregate Traffics to date: Totals: This Year	Aggregate Traffics to date: Totals: Last Year	Aggregate Traffics to date: Increase or Decrease	Shares or Stock	Prices: Highest 1941	Prices: Lowest 1941	Prices: July 31, 1942	Prices: Yield % (see Note)
South & Central America	Antofagasta (Chili) & Bolivia	834	26.7.42	£ 22,150	£ − 3,920	30	£ 641,290	£ 544,090	£ + 97,200	Ord. Stk.	10½	3½	9¾	Nil
	Argentine North Eastern	753	25.7.42	ps. 224,500	+ ps. 6,900	4	ps. 787,900	ps. 757,200	+ ps. 30,700	,,	4	1	4½	Nil
	Bolivar	174	June, 1942	4,368	+ 428	25	27,431	23,072	+ 4,359	6 p.c. Deb.	5	5	10	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds	8	2½	16	Nil
	Buenos Ayres & Pacific	2,807	25.7.42	ps. 1,355,000	− ps. 15,000	4	ps. 5,182,000	ps. 5,447,000	− ps. 265,000	Ord. Stk.	7¾	1¼	5	Nil
	Buenos Ayres Great Southern	5,080	18.7.42	ps. 2,083,000	+ ps. 140,000	4	ps. 5,267,000	ps. 5,414,000	− ps. 147,000	Ord. Stk.	10¼	3¼	8	Nil
	Buenos Ayres Western	1,930	18.7.42	ps. 793,000	+ ps. 3,000	4	ps. 2,007,000	ps. 2,140,000	− ps. 133,000	,,	9	2¼	7	Nil
	Central Argentine	3,700	25.7.42	ps. 2,141,150	+ ps. 389,300	4	ps. 7,110,450	ps. 6,618,100	+ ps. 492,350	,,	8¼	2¼	6	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	9¼	¼	3½	Nil
	Cent. Uruguay of M. Video	972	18.7.42	21,174	+ 571	3	55,938	62,982	− 7,004	Ord. Stk.	9½	1	4⅝	Nil
	Costa Rica	262	June, 1942	19,581	− 5,002	50	247,801	242,941	+ 4,860	Stk.	15½	11½	13	Nil
	Dorada	70	May, 1942	15,882	+ 2,982	21	63,546	62,100	+ 1,446	1 Mt. Db.	97	97	88½	6¼
	Entre Rios	808	25.7.42	ps. 273,700	− ps. 34,400	4	ps. 1,002,000	ps. 1,137,400	− ps. 135,400	Ord. Stk.	6½	½	5⅛	Nil
	Great Western of Brazil	1,030	25.7.42	9,800	+ 7,600	30	$295,300	272,600	+ 22,700	Ord. Sh.	11/-	1/-	5/8	Nil
	International of Cl. Amer.	794	May, 1942	$114,834	− $7,783	20	728,750	$552,133	+ $176,617	—	—	—	—	—
	Interoceanic of Mexico	—	—	—	—	—	—	—	—	1st Pref.	⅜	6d.	½	Nil
	La Guaira & Caracas	22½	June, 1942	5,860	+ 785	25	37,990	35,220	+ 2,770	—	—	—	—	—
	Leopoldina	1,918	18.7.42	30,993	+ 4,091	29	849,863	693,450	+ 156,413	Ord. Stk.	4	½	4½	Nil
	Mexican	483	21.7.42	ps. 295,000	− ps. 6,700	3	ps. 945,100	ps. 887,800	+ ps. 57,300	,,	⅜	¼	½	Nil
	Midland of Uruguay	319	June, 1942	14,640	− 804	49	167,105	151,608	+ 15,497	—	—	—	—	—
	Nitrate	382	15.7.42	15,772	+ 10,650	27	100,400	58,832	+ 41,568	Ord. Sh.	•66½	1½	3⅜	3⅞
	Paraguay Central	274	24.7.42	$3,770,000	+ $ 255,000	4	$13,888,000	$13,607,000	+ $281,000	Pr. Lt. Stk.	43/-	29	46½	14¼
	Peruvian Corporation	1,059	June, 1942	82,182	+ 18,894	52	915,630	772,792	+ 142,838	Pref.	6½	1⅛	13	Nil
	Salvador	100	May, 1942	c 106,000	+ c 46,000	45	c 959,172	c 743,683	+ c 215,489	—	—	—	—	—
	San Paulo	1,532	19.7.42	36,998	+ 848	29	1,031,165	1,074,200	− 43,035	Ord. Stk.	52	24½	52	3⅜
	Taltal	160	June, 1942	5,800	+ 3,750	27	55,510	32,595	+ 22,915	Ord. Sh.	1	6/-	1⅛	Nil
	United of Havana	1,346	25.7.42	46,673	+ 25,341	4	130,979	71,985	+ 58,994	Ord. Stk.	2¼	⅛	3	Nil
	Uruguay Northern	73	June, 1942	1,019	− 130	49	14,286	13,960	+ 326	—	—	—	—	—
Canada	Canadian National	23,562	21.7.42	3,743,500	+ 821,000	29	95,863,500	79,260,500	+ 16,603,000	—	—	—	—	—
	Canadian Pacific	17,049	21.7.42	1,000,400	+ 114,400	29	27,140,000	22,494,400	+ 4,645,600	Ord. Stk.	13-7/16	7⅛	10½	Nil
India†	Barsi Light	202	April, 1942	12,855	− 6,832	4	12,855	19,687	− 6,832	—	—	—	—	—
	Bengal & North Western	2,090	May, 1942	281,550	+ 6,732	8	555,000	555,860	− 860	Ord. Stk.	345	253	351½	5½
	Bengal-Nagpur	3,267	30.4.42	281,325	+ 30,419	3	809,550	800,995	+ 8,554	,,	101	95¾	96	4¼
	Madras & Southern Mahratta	2,939	10.5.42	214,050	+ 13,747	6	887,325	812,094	+ 75,231	,,	105-7/16	101¼	99	7⅛
	Rohilkund & Kumaon	571	May, 1942	58,950	− 12,488	8	119,550	140,639	− 21,089	,,	342	290	351½	4⅛
	South Indian	2,402	20.5.42	3,342,414	+ 27,868	7	16,363,368	14,045,230	+ 115,907	,,	100	87	95	3⅛
Various	Beira	204	May, 1942	66,600	—	9	600,715	—	—	—	—	—	—	—
	Egyptian Delta	607	31.5.42	11,000	+ 4,257	9	64,698	38,668	+ 26,030	Prf. Sh.	1½	29/-	2¼	Nil
	Manila	—	—	—	—	—	—	—	—	B. Deb.	68	45	37½	9⅛
	Midland of W. Australia	277	May, 1942	26,845	+ 9,254	41	229,956	167,924	+ 62,032	Inc. Deb.	90½	86½	89½	6
	Nigerian	1,900	25.4.42	51,498	+ 137	4	191,234	240,666	− 49,432	—	—	—	—	—
	Rhodesia	2,442	May, 1942	435,574	—	35	3,817,971	—	—	—	—	—	—	—
	South Africa	13,291	13.6.42	766,534	+ 27,549	11	8,034,717	7,649,341	+ 345,376	—	—	—	—	—
	Victoria	4,774	Mar., 1942	1,339,304	+ 366,183	37	10,425,476	8,391,343	+ 2,034,133	—	—	—	—	—

Note. Yields are based on the approximate current prices and are within a fraction of ⅛ Argentine traffics are given in pesos
† Receipts are calculated @ 1s. 6d. to the rupee § ex dividend